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## ORIGINAL ARTICLES.

### SOME INSTRUCTIVE CASES OF APPENDICITIS.<sup>1</sup>

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In this brief paper I desire to call attention to several cases of appendicitis which, it seems to me, possess more than ordinary interest:

CASE I.—Male, nineteen years of age, came under my care for a sharp attack of pain in the abdomen, which was not referred to the region of the appendix, but was said to be half way between the ensiform cartilage and the navel. The patient presented the history of no less than nine such attacks during the previous six months, some of them so severe that the hypodermic use of morphia was necessary. In none of them was the pain appendicular in character. As soon as the abdomen was exposed it was seen that there was a swelling of considerable size in the right inguinal region. On palpation this swelling proved to be only slightly tender, but very hard and resisting. Even when the somewhat rigid abdominal wall over it was relaxed the mass remained hard and brawny under my fingers, and was so large, and dipped down so deeply, that its extent could not be accurately determined. The possibility of malignant growth seemed to be excluded by the age of the patient, the unimpaired general vitality, and the history of the attacks, which were usually associated with some nausea and vomiting, and the general typical symptoms of appendicitis. The diagnosis was recurrent appendicitis with great thickening and deposit of inflammatory exudate about the appendix, and perhaps about the entire caput coli.

In other words, the patient had had acute appendicitis several times, with surrounding exudation and a chronic inflammatory process between the attacks. The large mass of exudate made it evident that an operation during the acute process would not only be difficult but possibly fatal as well, and, therefore, nothing was said to the patient about operative interference. After recovery from the last attack the patient refused operation, but after being impressed with the fact that nine attacks within six months indicated the speedy development of others, and that in any one of these a fatal result might ensue, and, on the concurrent advice of one of our most able surgeons, he at last gave a reluctant consent to the operation.

He was operated upon during the period of quies-

cence, and the appendix was found greatly enlarged, thickened, and surrounded by a mass of exudate. It was removed with some difficulty, but with no serious damage to surrounding tissues. The operation was well borne, but within twenty-four hours nausea, followed by stercoraceous vomiting, ensued, and the patient speedily died. There were no other signs of obstruction, and collapse came on so quickly that nothing could be done for his relief. I still think my advice was theoretically good, but practically the man would have lived longer if he had not consented to the operation.

CASE II.—This case is in some respects the opposite of the one just reported. A man aged fifty-five years, had had at intervals of six months two attacks of violent abdominal pain and all the other symptoms of acute appendicitis. The last attack occurred two months before I saw him, when he came from a Western city for advice as to operation. At my request he was examined, in consultation, by two surgeons of high repute, who found some tenderness but no marked induration. As he was forced by his employment to be constantly traveling through small towns he feared an attack when away from home and competent skill, and, while naturally not desirous of operation, was willing to have it performed if it was thought that recurrences were probable. One surgeon advised operation as a prophylactic and curative measure, the other and myself agreed that it would not be necessary. This was four years ago, and there has been no sign of a third attack, the patient being at present perfectly well.

CASE III.—A man, aged thirty-eight years, who, six months before I saw him, began to have severe pain in the right inguinal region. Usually he had a paroxysm of pain about every week, and sometimes more frequently. The pain was sharply localized, and at McBurney's point there was great sensitiveness, although when the examination was made there had been no attack of pain for a week. The patient had lost ten pounds in weight since the attacks began, but his appetite was good, although he was constipated. He was treated by absolute rest, a careful diet, and regulation of the bowels. He did not have an attack during nine days previous to leaving my care. The tenderness disappeared, as did the patient, so the subsequent history cannot be reported, but in the light of the first and second cases I am glad I did not urge operation. An interesting point in this case was an entire absence of fever during the attack which the patient had while under my care.

CASE IV.—A woman, aged forty-eight years, was seized in the middle of the night with agonizing abdominal pain situated in the epigastric and left inguinal regions, or between the latter and the median line. I

<sup>1</sup> Read at a meeting of the Philadelphia County Medical Society, March 9, 1898.

saw her eight hours after the pain began, and found her still suffering greatly, but without agony. She had all the classic symptoms of appendicitis: vomiting, pain, and exquisite tenderness over the appendix. The pain was so diffused that it was hard to tell exactly where it was most severe. The abdomen was scaphoid-shaped and somewhat rigid. The appendicitis was so acute that I did not dare to advise against an operation, and the weather so hot and the patient so feeble that I much feared the results of surgical interference. A well-known surgeon suggested operation, and then, as I did not like to oppose my views to his, I called in a medical consultant who agreed that while an operation was strongly indicated by the local condition, the hot weather and feebleness of the patient were greater dangers than the affection itself, especially when added to the effects of operative interference. Operation was not performed, the patient received local and general treatment and recovered in about three weeks. This occurred during June, 1895. Since then there has been no return of the trouble, and for a third time I am glad the knife was not used.

CASE V.—A woman, aged thirty-three years, who, between January 1st and May 15th, had four attacks of appendicitis, each of greater severity than its predecessor. An operation during each attack had been refused, and also between the attacks. When the attack in May occurred, the case was so evidently an operative one that operation was insisted upon and was at once performed.

The operation revealed an abscess at the tip of the appendix, containing about one dram of pus. The abscess was ruptured during removal of the appendix. The wound was, however, carefully cleansed and all pus apparently removed. The patient then progressed favorably for two weeks. The wound healed by first intention and all seemed well, though there was no gain in strength. At this time the temperature gradually began to rise and to be more and more marked, so that the chart resembled that of intermittent malarial infection. The old wound showed no sign of infection, the blood no evidence of malaria, and there was no history of malaria. The wound was then opened, found healthy, and again closed. There was still fever and persistent loss of weight. Finally, the wound was opened a second time, on this occasion down to the site of the appendix, and still everything was apparently normal. The fever persisted, though sweats and chills were absent. Six weeks after the operation, the patient was seized with severe pain in the abdomen, the temperature suddenly became accentuated, and she became partially collapsed. An examination of the abdomen now revealed for the first time a marked swelling in the right inguinal region as well as pronounced evidences of peritonitis. An operation was advised as the only resource, but after the belly was incised the patient so nearly died on the table that it had to be given up. Death occurred two days later, and at the post-mortem a large abscess of the right ovary and tube was found from which general peritonitis had resulted. Infection of these parts had evidently oc-

curred from the ruptured appendix, as the woman was unmarried and a virgin. The delay of operation in this case till the abscess was ready to rupture on the slightest touch, ultimately caused the death of the patient.

CASE VI.—Male, aged forty years, very stout, and of large frame. The patient was seized in the night with excruciating pain in the groin and throughout the whole abdomen. When seen by me, six hours later, the abdomen was already swollen and rigid. The pulse was rapid, but otherwise good. The abdomen was exquisitely tender. Operation was insisted upon, and was performed within an hour. The appendix was found gangrenous at its tip. He promptly recovered, and the operative interference without doubt saved his life.

CASE VII.—December 26, 1896, I was called to see R. L., male, aged ten years. I found him suffering from a moderate degree of pain which was situated in the right iliac region. He was in bed, had a coated tongue, and a temperature of 101.5° F. The history was that he had been taken during the night with several paroxysms of fairly severe pain, and had had several that morning. A week before, upon going to bed, he had had some nausea and gastric disturbance, probably due to intemperance in diet. Close questioning revealed the fact that during that week he had also had considerable pain in the bowels, although by no means so severe as at the time he was first seen by me. Not only was there marked tenderness over McBurney's point, but as I have frequently noticed in such cases, the patient complained of a good deal of pain in the neighborhood of the transverse colon. Placing a hand under the flank, or in other words, behind the appendix, seemed to reach the most tender spot. That evening I asked his relative, Dr. Howard A. Kelly, to see him in consultation, and it was decided that the best thing to do was to insist upon perfect rest, a liquid diet, and no medicine.

On the following day the pain was about the same, as was also the rigidity of the abdominal walls. As he had been freely purged on the 25th by means of citrate of magnesia and cascara sagrada it was thought wise not to administer any purgatives at this time. On the morning of the 28th the swelling and tenderness in the right iliac region was increased, and the pain was stated by the child to be much more severe. Another consultation with Dr. Kelly was requested, and he decided that it would be advisable to freely administer Rochelle salts. This was done, but after the third dose of a teaspoonful, vomiting occurred. Castor oil was then substituted, and two hours later resulted in two free movements of the bowels. The temperature during the 27th and 28th was about 99° F., both morning and evening. On the morning of the 29th, the pain seemed to be slightly relieved for a time, but the tenderness on palpation was quite as marked as ever, and the boy stated that the pain was returning as the hours passed by.

It was determined that it would be wise to interfere surgically, and an operation was performed on

that day (Tuesday) by Dr. Kelly, assisted by Dr. C. P. Noble and two of Dr. Kelly's assistants from Baltimore. The appendix was found markedly inflamed, but it did not contain pus. There was a slight peritoneal hyperemia all around the neighborhood of the appendix. The boy did very well after the operation; his temperature did not rise above 99.5° F.; vomiting was very slight, and the case progressed favorably for a period of ten days. On Monday, January 10th, the patient was seized, however, with violent pain in the abdomen. On examination the abdomen was found to be neither scaphoid-shaped nor swollen, although it was tympanitic on percussion. Pain was excessively severe, and seemed to have its greatest point of intensity in a line drawn between the nipple and the anterior superior spine of the ilium to the right of the umbilicus. At this point it was thought, on careful examination, that there was increased resistance. The pain continued during twenty-four hours, notwithstanding the administration of  $\frac{1}{8}$ -grain of morphin, which gave relief only for a short time. The temperature remained about normal.

The next day, however, retching and vomiting became prominent symptoms, and, although not constant, occurred with sufficient frequency to be considered a grave indication. He had been unable to pass anything from the bowels from the time the attack began, though no food had been given him which could in any way have produced intestinal complications. Repeated rectal injections failed to have any result, except on one occasion, when a slight quantity of gas was passed. In view of his grave condition it was decided, two days later (Tuesday the 12th), that something must be done for his relief, and, after consultation between Dr. Edward Martin, Dr. Kelly, and myself, it was decided that the boy should be etherized, inverted, and that copious intestinal irrigation should be resorted to. At this time the boy was vomiting small quantities of liquid of a coffee-ground or grumous appearance, mixed with streaks of bright-colored blood, and there was marked abdominal distention. One and a half quarts of warm saline solution having been injected into the bowel without reducing the obstruction, the boy was placed upon the operating-table. After the injected liquid had been drained out by means of a rectal tube, Dr. Kelly opened the abdomen half-way between the umbilicus and his earlier incision for appendicitis. A small quantity of liquid was found in the abdominal cavity, there was evidence of slight peritonitis, and two large knuckles of gut were found adherent to the abdominal wall, producing intestinal obstruction by preventing peristaltic movement. The bands of adhesions were broken up, the wound was closed, and the child put back to bed in fairly good condition considering the gravity of the case. Twenty-four hours after the operation the bowels moved freely, and a considerable quantity of fecal matter was passed.

The patient made a good recovery from the operation, and was kept on a strict liquid diet for a period of four or five days. His temperature during

this period never being febrile, but he suffered from time to time from more or less violent attacks of abdominal pain. His condition, however, steadily improved until Tuesday, February 2d, when I called at 4.30 A.M., because he was suffering from violent pain which was not relieved by a hypodermic of morphia given at 6 P.M. the previous evening. I found him with excruciating abdominal pain, a tense and rigid abdomen, and some slight nausea. The boy had not had a movement since the previous morning. Morphin ( $\frac{1}{4}$ -grain) was given hypodermically, and though repeated at 9 A.M. the next morning, did not afford material relief. I immediately telegraphed for Dr. Kelly, and, after a careful examination, it was decided that he had about one and a half quarts of liquid in his abdominal cavity, and that there were evidences of adhesions obstructing the intestines. In view of the gravity of a third operation it was decided by Dr. Kelly, Dr. Martin, and myself to take the risk of waiting twenty-four hours. At the end of that time, the various rectal injections having failed, another one was given with the result that he passed a large amount of fecal matter, following which the pain subsided. Convalescence was established, and the boy was considered cured, Friday, February 19th, although at that time there was still present, as there had been from his first getting up, February 10th, slight impairment of power in the lower extremities (partial paraplegia).

These cases, which are taken as types from a larger series, illustrate the fact that the physician assumes a grave responsibility if he urges an operation, perhaps as grave as if he opposes it; that he cannot afford to leave a decision as to the wisdom of operation entirely to his surgical colleague, and, finally, that patients with appendicitis often recover and remain well, or, in other words, in all cases an operation is not necessary, either for immediate relief or for the prevention of other attacks. On the other hand, there are cases which are so fulminating in character that an hour's delay is dangerous, and I am inclined to believe that in cases with early fixation of the body and abdominal muscles and without much temperature disturbance, operation is more necessary than in those in which the pain is greater, more continuous, and more severe on pressure.

#### COMPOUND FRACTURES INVOLVING THE ANKLE-JOINT.

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In the consideration of this subject the ordinary classification of injuries to the ankle-joint will be adopted; for the reason that any simple fracture may become compound in a proportion varying directly with the quality of the injuring force. It is impossible, however, to determine exactly which bones are invariably involved in such injuries, or the man-



ner in which they are broken, since there may be a fracture of any or all of the three bones forming the joint, the lines of fracture varying with the quality, quantity, and direction of the violence producing the injury. In addition, it will be necessary to include in the classification such bones as serve to maintain the integrity of the joint, though not directly contributing to its formation. The subject, then, must embrace such compound fractures as involve the tibia, fibula, whether malleolar or supramalleolar, astragalus, and the os calcis, when the latter shares the injury with the foregoing. Fractures of the tibia or fibula, alone or together, above the malleoli, as a general rule do not involve the joint, even when they are compound. The exceptions are noticed in cases in which the lacerations are prolonged into the joint, either from severe lacerating or continued force, which, after causing the fracture, continues to act. As an example of such force may be mentioned an injury to the ankle from being caught between two objects, the one stationary and the other in motion.

*Injuries Caused by Eversions of the Foot.*—A classic Pott's fracture when compound will usually show the laceration high above the malleolus and opposite the site of the break in the fibula; but cases are frequently observed in which the laceration occurs opposite the internal malleolus. In such an instance the eversion of the foot is extreme and the fractured inner malleolus generally presents in the wound. In these injuries the unyielding internal lateral ligament carries downward the tip of the malleolus, the synovial sac is opened and the joint exposed. The obliteration of the mortise permits an inward dislocation of the astragalus which follows the outward displacement of the foot. The same force may cause a fracture of the outer articular border of the tibia, or a laceration of the tibiofibular, or interosseous ligament, and a consequent dislocation of the tibia inward. In these instances we may expect to find a laceration of the anterior fasciculus of the external lateral ligament, the reason for this being that the astragalus partakes of the outward deviation of the foot and swings inward while the lower fragment of the fibula is carried outward. This allows partial luxation of the astragalus inward. The degree of the luxation depends upon the severity of the injury.

Fracture of the inner malleolus alone, when compound, may or may not be accompanied by dislocation of neighboring bones. The chances are that partial dislocation will occur if the fracturing force be violent, for the reason that the line of fracture through the malleolus is usually transverse, or nearly so, and sufficiently high up to destroy the in-

ner side of the mortise and allow the joint-fluid to escape. When the external lateral ligament yields the degree of luxation may be extreme, the superior articular surface presenting inward. This is facilitated by a fracture through the lesser process of the os calcis.

As a result of forcible eversion of the foot the external malleolus may be fractured and compounded at the site of the fracture, below and posterior to it, or near the internal malleolus. It will usually be found in such cases that the foot has not only been everted but carried bodily outward as well. The astragalus glides outward from its socket with little or no obstruction, and is largely instrumental in causing the compounding of the fracture. A fracture of the lesser process of the os calcis may complicate such extensive injuries, and it is usually accompanied by marked deformity. In the study of injuries of this nature there must be borne in mind the liability of involvement of the blood-vessels, nerves, tendons, and soft parts generally.

*Fractures Caused by Inversion of the Foot.*—Compound injuries resulting from this cause are more common than elsewhere about the joint because of the more exposed position of the fibular surface and the greater frequency with which the foot encounters inward displacement. Since any fracture of the ankle may by chance become compound it will be well to consider such injuries as commonly occur in this region. The arrangement of the fibers of the external lateral ligament predisposes to two varieties of injury. Either there will be a transverse fracture of the outer malleolus at the tip or base, more commonly the latter, or a fracture of the sustentaculum tali, or of both. By reason of direct pressure of the astragalus upon the inner malleolus the latter is often broken. The forcible eversion of the astragalus brings pressure to bear upon the deltoid ligament, the inner malleolus, and the lesser process of the calcaneum. If this powerful ligament refuses to yield the result will be a vertical line of fracture through the lesser process unless the inner malleolus yields first. The astragalus itself may be broken, particularly when the breaking force is vertically and laterally applied. The line may run transversely and include merely the tibiofibular articular surfaces, or may run vertically and from before backward anterior to the tibial articular facet. When the injury is severe the following may be presented: The laceration on the outer aspect of the ankle widely gaps, revealing the tibial articular facet of the astragalus which lies upon its side. The foot may be straight or strongly inverted, depending upon the amount of damage to the calcaneum and the calcaneo-astragaloid ligament. The tibia may show a



line of fracture running transversely less than a centimeter above its articular surface, and in this respect differing from a supracondyloid fracture. The fibula usually breaks at a point about an inch lower than in Pott's fracture, and shows a transverse line of fracture or even multiple lines.

*Fractures Due to Crushing Injuries.* — Under this division may be classed such severe compound fractures as result from severe crushes and falls upon the feet. The damage to the joint and soft parts is extensive and usually amounts to disintegration of the former. The articular surfaces of the tibia, fibula, calcaneum, and astragalus are commonly ground in pieces, the periosteum badly torn, and the soft parts pulped. It would be useless to attempt any classification of such injuries. The amount and variety of damage is, of course, variable.

The *symptoms* of compound fracture involving the ankle-joint are those of simple fracture, modified, however, by the damage to the soft parts.

The *diagnosis* depends upon the symptoms and physical signs, and is facilitated in a ratio variable with the extent of the compounding.

In the *treatment* of such injuries the surgeon has no set rules to follow. Each injury is a law unto itself. Each patient rightly may demand two-fold efforts: those directed toward maintenance of the best general condition, and those which aim to preserve the joint. The former may demand the abandonment of the latter. In general the treatment may be said to consist of reduction of the fractures or dislocations and in cleansing the joint and closing the wound under strictest aseptic rules, and lastly, immobilization of the affected part by some suitable device. When reduction is easily accomplished and there is little tendency to subsequent displacement, any unnecessary manipulations or interference with the wound should be rigidly interdicted. The exception are those cases in which the joint is full of macroscopic particles of dirt, filth, pieces of stocking, etc. It is wise to let the joint alone when evidences of contamination are wanting.

In cases in which the deformity is not easily corrected and in which it is difficult to maintain the fragments in position, as, for instance, when the astragalus has turned upon its side, it is perfectly allowable to manipulate the parts through the laceration. When the wound is merely a puncture it is better to further incise and carefully inspect the field of injury. By so doing the deformity is better corrected and the prognosis is not altered. In this connection there appears a class of cases that demands a similar procedure: When the injury has caused an irreducible deformity and extensive mangling of the soft parts, without actual compounding,

the joint and tissues will be found full of blood. It will become evident that on account of the damage the pressure from within will not allow the skin to recover its vitality and thus will cause it to slough. By rendering the injury compound the deformity may be remedied and the hemorrhage checked. Failure to properly reduce recent deformity will call for subsequent consideration of various operative measures, including actual resection of the joint. When the articular surfaces about the joint are badly shattered, resection at the time of injury, or later, will yield good results; under such circumstances ankylosis is, of course, expected.

As to the question of amputation: It is always better to preserve the foot, if possible, unless by so doing the patient's chances of recovery are lessened. If the patient be in good general health, and the circulation beyond the site of injury can be maintained, it is best to try and save the foot. A plaster dressing to the leg and foot, with fenestræ or interruptions where necessary, and suspension of the limb will meet the requirements in the vast majority of cases. Anterior and posterior splints of iron embedded in the plaster and arched over the fenestræ or interruptions will afford better support and greater rigidity to the part.

CASE I. — F. S., Swede, forty-five years of age, an iron miner, of large and powerful frame, and in rugged health. July 12, 1897, while he was riding on an ore-dump the car jumped the track and jammed his ankle between the axle and a pile of rails lying by the tramway. The man was brought to the hospital and anesthetized. Examination showed the following condition: On the outer aspect of the leg and foot was an irregular laceration of the skin and soft parts, four inches in length, extending from a point one inch above the malleolus, across it, downward and forward. The external and anterior fibers of the external lateral ligament were torn across. The fibula was broken transversely immediately above the malleolus. The astragalus was luxated forward and outward sufficiently to show nearly all its superior articular surface. The interosseus ligament was intact. The malleolus was in relation to the astragalus, the anterior and posterior ligaments having yielded. The foot was decidedly inverted. The tibia and deltoid ligaments were not damaged. Hemorrhage was slight. The wound and joint were full of pieces of yarn, shreds of leather, and hematite. The foot, and the astragalus with it, were easily replaced in a normal position, and the outer malleolus carried into its proper relation. There was little or no tendency to subsequent displacement.

The laceration was closed with interrupted silk-worm-gut sutures. The foot and leg, from toes to knee, were encased in plaster over a stout anterior splint of iron. In this dressing large fenestræ were left over the site of the wound. The wound was

antiseptically dressed. Three days later a few of the stitches below the malleolus and in the middle portion of the laceration were removed to facilitate the discharge of a small quantity of pus, the presence of which the thermometer had indicated. Subsequently the reopened wound healed by granulation. The upper and lower sutures held and secured primary union. At the end of six weeks the dressing was removed. The foot was in excellent position and the wound entirely closed. The motions of the joint were not less than would be expected from such a period of enforced rest. The patient walked without crutches on November 1st, and returned to work one month later. There was at that time no impairment of motion, nor was there the slightest limp. The only evidence of injury was the cicatrix of the laceration.

CASE II.—L. O., Swede, thirty-eight years of age, and by occupation a carpenter. The patient had pulmonary tuberculosis. Bacilli in great numbers were first demonstrated to be present in the sputum during March, 1897. His wife was then in an advanced stage of the same disease. June 24, 1897, the patient was building a cellar-way at the hospital. He attempted to walk across the top of the opening on a board one-half inch in thickness. The plank gave way letting him fall a distance of eight feet, striking the outer half of the plantar surface of his right foot on the edge of the bottom step in such a way as to cause strong abduction. He was immediately carried into the hospital and anesthetized.

Examination showed the following injury: The foot was everted to an angle of eighty degrees with the shaft of the leg. The laceration was long and irregular, running downward and forward just beneath the internal malleolus. The tibia protruded about three inches and showed a transverse fracture one centimeter above the articular surface. The shaft was not injured. The astragalus was badly shattered, being broken vertically and transversely into several fragments. A vertical line of fracture traversed the lesser process of the calcaneum. The interosseus ligament and the external lateral ligament appeared to be intact. The fibula was comminuted. There was a transverse supramalleolar fracture, and also lines of fracture running through the malleolus forward and inward and forward and downward. Hemorrhage was not severe. In order to manipulate the fragments of the astragalus it was necessary to enlarge the laceration. None of the fragments seemed to be entirely detached. They were replaced with some difficulty. The foot was brought into proper relation to the leg and the articular surface of the astragalus, that is, what remained of it, placed in apposition with that of the tibia. The comminuted external malleolus was pressed and molded into a good position against the astragalus. The circulation in the foot was good, the anterior and posterior tibial arteries having escaped injury. A rubber drainage-tube was placed in the central portion of the laceration, and another was introduced through a counter-opening made just anterior and

below the tip of the external malleolus. The laceration was then sutured above and below the tube. The foot and leg were encased in a plaster dressing over anterior and posterior iron splints, leaving an interruption at the ankle. The limb was suspended and swung clear of the bed. On the third day the tubes were removed. Considerable foul pus had found its way out of the wound. This discharge continued uninterruptedly. Some fragments of the astragalus necrosed, and a probe detected softening of almost the entire bone, and also of the articular surface of the tibia. By August 1st the counter-opening had closed, but the sloughing of the necrosed fragments continued through the original laceration. By the end of the month the discharge had greatly diminished. The sinus persisted and was about an inch in depth. The patient's general condition was not seriously impaired.

At the present time the patient is about on crutches, and he rests a fair amount of weight upon the foot. He complains of pain, but indicates it well forward in the tarsus, the usual situation of pain after long immobilization of the foot. The sinus persists, and is three-quarters of an inch in depth. The discharge is thin and scanty. There is a limited yet fair amount of motion. The patient's general health does not improve. Tubercle bacilli in great numbers are present in the sputum. It will be safe to assert that the patient will not survive sufficiently long to ever have the use of a sound though perhaps ankylosed joint. The accident occurred in the region of Lake Superior, where the summer is brief and the winters trying to persons of rugged health, and disastrous to those with tuberculous tendencies. It seems to me that it would have been better surgery in this particular case to have amputated the foot and spared the patient the tedious months of suppuration during which he was confined to his room. The chances for ultimate use of the foot are nil, and the shock following amputation would not in all probability have exceeded that of the original injury. Crutches were inevitable in any case, yet their earlier use, following amputation and the patient's increased out-door activity during the most favorable season of the year would have contributed much to his well-being. This is particularly true since he was in an early stage of consumption at the time of the accident.

CASE III.—E. P., a Finn, of temperate habits, and in robust health, twenty-eight years of age. His occupation was gold-mining. November 23, 1897, his left ankle was caught under a "fall of ground." Examination showed a long, jagged laceration through the skin and soft parts on the outer aspect of the left ankle. There was slight inward displacement and rotation of the foot. The articular surfaces of the tibia and fibula were crushed and pulverized. The astragalus and sustentaculum tali had met a similar fate. The wound and joint were ground full of dirt. The soft parts all about the ankle and well forward on the foot were badly crushed. Pulsation of either the anterior or posterior tibial artery could not be detected. Hemor-

rage was free, but not severe. The patient rode five miles to the hospital in an open sleigh. As he was suffering from shock and cold he was immediately put to bed, warmth and stimulants exhibited, a temporary dressing applied to the injured limb, and every effort made to arouse the circulation in the foot. It soon became evident that the part was dead. Accordingly, on the following morning, an amputation was performed at the lower third of the leg. Had the integrity of the circulation been maintained there would have been an attempt to favor the man's condition by the following operative measures. The loose fragments of the tibia and fibula would have been removed and both bones sawed transversely through immediately above the uneven line of fracture. The astragalus would have also been removed, and the superior articular surface of the calcaneum sawed or chiseled off transversely. The tibia and fibula would have been wired together, the foot carried up, and the os calcis wired to both the tibia and fibula. Ankylosis would have been the object sought.

The man made an excellent recovery following the amputation, and at the present time goes about with the aid of an artificial limb.

### MASTOIDITIS.

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*Diagnosis.*—Mastoiditis is seldom a primary affection, being usually a complication of otitis media. It is characterized by pain and tenderness in the mastoid, at first slight, but rapidly becoming both severe and persistent, especially at night, disturbing or preventing sleep. The pain may radiate to the temporal, occipital, or supra-orbital regions. Tenderness on pressure or on percussion of the mastoid, over the antrum, the tip, or both, will be complained of if the inflammation has continued for a few days. In exerting pressure it is necessary to avoid the auricle, in view of the fact that the pain excited in the inflamed canal or middle ear may be misleading. In some persons the tip of the mastoid is normally quite tender. Edema back of the ear may or may not be present, even though the interior of the mastoid be necrotic. However, there is usually more or less infiltration of the tissues over the mastoid in the acute and sub-acute forms of mastoiditis.

With periostitis, there is tenderness, redness, and swelling over the mastoid. Fluctuation is indicative of the presence of a subperiosteal abscess, in which case there is usually displacement of the auricle. Inflammation originating in the external canal may extend to the periosteal covering of the mastoid and finally result in the formation of an abscess. In young subjects it may pursue such a course from the middle ear without perforating the cortex,

having found exit through the Rivinian segment.<sup>1</sup> In children, in whom the cortex is quite thin, perforation may occur within a day or two after the pneumatic cells have been invaded. The abscess occasionally ruptures through the internal surface of the mastoid, and thus pus enters the tissues beneath the sternocleidomastoid muscle. This was true of a case which I observed a few years ago. The local temperature, according to Politzer,<sup>2</sup> will frequently be elevated above that of the healthy mastoid. Body temperature is an uncertain guide. During the acute stage it may vary from normal to 103° F. When the more acute stage is over the temperature may be normal even though the destructive process still continues. When the temperature fluctuates, rising and falling suddenly several times within twenty-four hours, it is indicative of involvement of the lateral sinus. The pulse under such circumstances is rapid, small, and thready.<sup>3</sup>

Abscess of the mastoid complicating acute otitis media is usually located in the middle and lower portions of this bony process contiguous to the cortex. Politzer's observations have led him to believe that the mastoid abscess is isolated and almost without exception has no communication with the antrum.

In most cases of mastoiditis originating during the course of an otitis media it will be observed that the posterior-superior wall of the meatus, near the drum membrane, is bulging and tender. When the canal is thus depressed in a case of otitis media purulenta, and in which there is a history of pain and tenderness in the mastoid, and perhaps a variation in the local and general temperature, a diagnosis of mastoiditis is justifiable. The bulging of the posterior-superior wall of the canal, like the pain in the mastoid, is not always present. In January of the present year I operated in two cases of mastoiditis, in neither of which was there a bulging of posterior-superior wall, nor the typical pain of mastoiditis, and yet in both the mastoids were diseased. In one I exposed half an inch of the lateral sinus before all the necrotic tissue was removed.

*Prognosis.*—Mastoiditis is a grave malady, though when it complicates acute otitis media, if promptly treated, the prognosis is generally favorable. During the exanthemata, however, its progress is rapid and destructive, and efforts to check it are not usually successful. When mastoiditis develops during the course of chronic otitis media the outlook is grave, especially when there is a history of previous attacks of a subacute character. The inflam-

<sup>1</sup> Dench, "Diseases of the Ear," page 447.

<sup>2</sup> Politzer, "Diseases of the Ear," third ed., page 491.

<sup>3</sup> Macewen, "Diseases of the Brain and Spinal Cord," page 237.



mation of the ear which so frequently develops during an attack of influenza is usually severe, and often extends to the mastoid.

When the discharge in otitis media and mastoiditis does not find free exit through a perforated membrane, the pus may find its way through the mastoid cortex, outwardly, anteriorly, or even into the digastric fossa. It may enter the middle fossa of the brain through the roof of the antrum or tympanic vault, or possibly the region of the lateral sinus.

In a few cases of mastoiditis recovery occurs without an operation, yet in order to prevent bone destruction and brain complications vigorous abortive treatment is necessary. Delay may result in brain abscess, sinus thrombosis, phlebitis, or meningitis.

On March 20th, of last year, I saw two cases of lepto-meningitis which had resulted from otitis media. In both, the disease had invaded the brain through the tympanic vault. One case was in a strong, muscular man, about middle age, whom I saw in consultation. He was in a semi-comatose condition. A history of long standing otorrhea was obtained. An operation was performed within a few hours, and revealed the existence of extensive caries of the mastoid and middle ear, with a perforation through the tympanic vault. The prognosis was, of course, very unfavorable, and the man died within twenty-four hours. At the post-mortem evidences of extensive meningitis were found.

The second case was in a robust young man, who several weeks before had had an attack of otitis media, which, under treatment, had subsided. Shortly after, and following exposure, there occurred a second and subacute attack of the same affection. This was followed by brain symptoms. The mastoid was opened by a colleague, but the operation did not result in finding any evidence of disease. Symptoms of meningitis developed. At the autopsy a purulent meningitis (limited to the posterior fossa) was found, the pyogenic material having entered the brain cavity through the vault of the tympanum.

**Treatment.**—When a case of mastoiditis comes under observation at an early stage abortive treatment should be tried. This consists of rest in bed, light diet, and free evacuation of the bowels obtained by the administration of calomel and a saline. If the drum membrane is congested and bulging it should be freely incised through its posterior-superior portion. The incision should also extend for a short distance along the posterior-superior wall of the canal to allow free drainage from the middle ear and attic, as well as depletion of the wall adjacent to the antrum. When a perforation exists it may be necessary to enlarge it in order to provide free drainage. The ear should be irrigated with a hot antiseptic solution several times daily. Cold, applied by means of the Leiter coil, or Bishop ice-bag, is a

valuable aid in checking the inflammation, and should be continuously employed during twenty-four to forty-eight hours.

Dench<sup>1</sup> mentions a diagnostic point in the application of cold, in that if the pain is neuralgic, it will be increased by cold, but if due to inflammation, it will be diminished. Local blood-letting by means of either the Swedish or artificial leeches will render valuable service in plethoric subjects.

Following this treatment there may be an apparent improvement in the symptoms; but if, on reexamination, it is found that the tumefaction and tenderness still continue, surgical measures should be at once instituted. Dench states that "this experience has so often fallen to my lot that I never continue the effort to abort the attack for more than forty-eight hours, feeling certain, if marked improvement has not occurred in this time, that operative treatment will be subsequently necessary." The pain may be modified by the administration of codein and acetanilid; the latter, of course, also reduces the temperature. When general headache exists, the ice poultice, consisting of bran and pounded ice, will render valuable service. If abortive measures fail after two- or three-days' trial, longer delay is unwise, especially if the mastoiditis has developed during the course of a chronic otitis media.

In mastoiditis complicating acute otitis media it is safe to continue the treatment a longer time before instituting operative measures, as in such cases the abortive treatment often gives relief.

**Operation.**—When a subperiosteal abscess has formed it should be evacuated by an incision about three-eighths of an inch back of the auricle and parallel with it. Should there be a fistulous opening in the bone it will be necessary to proceed as in a regular mastoid operation. When an operation is to be performed, the head, for a distance of three inches from the auricle, should be shaved, and cleansed with soap and water, with ether, and then with a 1-to-1000 solution of bichlorid of mercury. At this day it is not necessary to emphasize the necessity of careful asepsis and antisepsis, the details of which may be safely left to the judgment of the operator. Before the operation the patient's bowels should be moved, and no food given during the previous six hours. The necessary instruments consist of scalpel, periosteum elevator, artery forceps, retractor (Allport's being one of the best), chisels, mallet, curettes, spoons, gouges, probes, scissors, and rongeur forceps. The head should be covered with sterilized towels, leaving exposed the region to be operated upon.

The exact method of procedure cannot be known

<sup>1</sup> Dench, "Diseases of the Ear," page 450.

in advance of the operation. The incision down to the bone should be made from the tip of the mastoid to a level with the upper attachment of the auricle, about three-eighths of an inch from the posterior attachment of the latter. The periosteum should then be elevated, and the retractor placed in position. If no fistulous opening is observed in the bone, an opening should be made with the chisel over the antrum. The opening should be made close to the posterior bony wall of the meatus, and not above its upper margin.

After entering the cortex, if the interior is found to be necrotic or soft, the narrow rongeur forceps can be used to remove this portion of the bone, after which the interior, or all unhealthy tissue, may be removed with a sharp spoon. If it is desirable to excise the posterior canal-wall, it can be very conveniently accomplished with the narrow rongeur forceps (Bacon's) and chisel. All the diseased tissue must be removed, even though in doing so it becomes necessary to expose the lateral sinus and facial nerve. Great care is necessary to avoid wounding the facial vein or nerve.

It is very important that the operator be familiar with the anatomy of the parts, as well as to know that in no two cases will the mastoid be found of the same shape, density, or thickness.

During the operation frequent drying of the wound with sterilized gauze is necessary, to permit observation of the depth of the wound and determination of the condition of the tissues. After removing all dead and diseased tissue the wound should be freely irrigated with salt or bichlorid solution. The upper part of the flesh-wound may be closed with stitches, down to the upper part of the cavity in the bone, after which it should be loosely packed with sterilized or iodoform gauze. Between the edges of the flesh-wound only a thin layer of gauze is required; thus the parts will earlier assume their normal position. Next, over the whole operative area, should be placed several layers of sterilized gauze, and then a layer of cotton, all of which is held in place by a gauze bandage.

It is not necessary to change the first dressing for four or five days, unless the wound becomes painful, or the temperature rises above  $100^{\circ}$  or  $101^{\circ}$  F. Subsequently, the dressing should be changed every two or three days. The wound should be allowed to heal from the bottom, and if healthy granulations are slow in forming, they may be stimulated by a mixture of balsam of Peru, iodoform, and guaiacol.

The wound may be allowed to close, in some cases, within two or three weeks, while in others it becomes necessary to keep it open for two or three months. The operation itself is not dangerous when properly

performed; the danger lies in not instituting operative procedures early enough, before brain complications occur.

#### THE EPIDEMIC OF DENGUE AT HOUSTON, TEXAS; CLINICAL REPORT OF CASES.

By I. B. DIAMOND, M.D.,  
OF HOUSTON, TEXAS.

DURING the epidemic of so-called dengue fever which prevailed extensively here and elsewhere throughout Texas last summer, different opinions were expressed as to the true nature of the disease. A number of the symptoms appeared analogous to those observed in yellow fever, so that a differential diagnosis between the two affections was often difficult. A number of such cases, which I deem worthy of publication, came under my observation.

Out of 71 cases, observed and treated, 23 were in children; to these latter I will refer later. In the majority of cases the onset was sudden. In many, a severe chill marked the beginning of the attack, and it was not uncommon to observe a succession of chills one after the other. The chill was soon followed by backache, pains in the head, bones, joints, and muscles, and also by loss of appetite, nausea, and vomiting. Nausea was constantly present in the majority of cases. The tongue was coated white, and frequently redness around the edges was observed. The bowels, as a rule, were constipated and difficult to move by medication. The face was flushed, skin dry, and conjunctivæ injected. The elevation of temperature was gradual, and during the course of the affection ranged between  $103^{\circ}$  and  $106^{\circ}$  F., and the pulse 100 to 120 per minute.

In the majority of the cases it was noticed that the pulse gradually became slow on the second and third day, frequently as low as 50 beats per minute, while the temperature remained as high as  $103^{\circ}$  F., or even higher. This want of correlation between pulse and temperature was a marked feature in my cases. The urine in many cases was of light color, and micturition frequent and painful; while in others it was high colored and diminished in quantity. Albumin was present in a few cases. Unfortunately, no systematic examination of the urine was made. While albumin was sometimes absent on one occasion, it would not infrequently be found on subsequent examination. During the thirty-six to seventy-two hours following the onset of the affection the pains constantly increased in severity, especially those in the head and back. The pains were described by many patients as tearing and crushing. At this stage the patients felt very uncomfortable, became exceed-

ingly restless, and unable to sleep. Slight delirium was noticed in a few cases. Cold feet and chilliness were often complained of during the fever. After the disease reached its height, usually on the third day, the fever began to abate and the pains to subside, leaving the patient in a prostrated condition. In a number of my cases an eruption soon appeared, followed again by a second paroxysm, with pain, fever, etc. Itching was often present, associated with a tense and hot skin, especially of the palms of the hands and soles of the feet. The eruption, as a rule, was punctiform, deep red in color, and the size of a pin-head. In a few instances it was more or less diffuse, and in one case it had the typical appearance of urticaria. The eruption continued but a few days, when convalescence, often protracted, began. Nearly all cases resulted in recovery. Extreme debility, mental and nervous exhaustion, were marked in the majority of my cases. Weakness and pains in the lumbar region, which became aggravated on walking, were frequently complained of during convalescence. Appetite soon returned, and in many it even became ravenous. A peculiar and bitter taste in the mouth, especially on taking food, was often complained of, and this symptom usually continued some time. Cramping pains in the abdomen, described as colicky in character, and continuing for several weeks, were also complained of by many patients.

An icteroid hue of the face and conjunctivæ during convalescence was noticed in a number of my cases. In several cases minute hemorrhages, which gradually disappeared, were observed in the conjunctivæ. In six cases vomiting was a prominent symptom, and continued throughout the course of the affection. In these cases weakness was marked, pulse slow, tongue red and dry. In one, that of a woman aged fifty years, gastric hemorrhage occurred on the second day. The blood was mixed with the vomit. The matter from the stomach usually consisted of bile and mucus. Nothing was retained by these patients for any length of time.

Pains in the abdomen were often a prominent symptom. In some it was referred to the pit of the stomach, in others, to the region of the appendix. In one case, that of a young married woman, the pain was referred to the region of the gall-bladder; in another, in a young man, there was constant pain in the left inguinal region, radiating down the left leg. Another feature in this case was complete obstruction of the bowels during six days; the patient vomited considerably, his temperature ranged between 100° and 104° F., and the pulse from 80 to 100 per minute. During this time he complained of severe frontal headache. I may state that medication and enemata were employed without avail. The constant applica-

tion of ice was resorted to with good results. It was used in all cases in which pain in the abdomen was constantly present.

In two of my cases marked jaundice was present throughout the attack. Menstruation occurred in a young woman during her illness; it had more the character of a hemorrhage than of menstruation. The discharge was dark red, almost black in color, and continued several days. This was also accompanied by pain in the lower part of the abdomen.

Relapses followed in seven of my cases after an interval of from one to five weeks. The relapse was usually more severe than the primary attack, as is illustrated by the following case:

Mrs. N., white, aged twenty-eight years, the mother of three children, and at the time of the attack in the ninth month of gestation. She had recently recovered from a mild attack of the disease under consideration. On November 2d, twelve days later, she was taken with a severe chill, which was repeated several times during the night. The first chill was followed by cephalalgia, backache, and severe pains in the abdomen. The tongue was coated and red around the edges; nausea and vomiting were present, as well as constipation; temperature, 105° F.; pulse, 110. The face was flushed and the eyes injected. These symptoms continued until the third day, November 5th. During the night of the fifth she became delirious; temperature, 106° F.; pulse, 110. There was sordes of the lips, and the tongue was swollen and red. The pains increased in severity. Fetal movements had not been observed for several days, which, of course, indicated the occurrence of fetal death. On the following morning she was taken with true labor pains, and after several hours gave birth to a dead child. Undoubtedly the fetus died either as a result of the high maternal temperature or from infection, transmitted from the mother, as the infant was not cyanosed when born. The mother had fever for several days following parturition; temperature ranging from 101° to 104° F.; pulse about normal. On the following day she had a moderate hemorrhage from the nose which lasted several hours. The tongue continued red and dry. Diarrhea followed and lasted during the next three days, the patient having from ten to twenty evacuations daily. She gradually improved after the ninth day, and finally recovered.

In one of my cases there were marked renal symptoms and general dropsy. The urine was dark and smoky, and loaded with albumin and cast, as well as blood-corpuscles in different stages of degeneration.

In children the disease ran a comparatively mild course. In twelve a distinct rash was present. The youngest child attacked, in whom the rash was also present, was an infant three weeks old. The mother, as well as the other members of the family, had the disease during the same week, so this was undoubtedly a true case of dengue. In two children the



affection was at first mistaken for measles, and in another for scarlatina. The rash usually appeared earlier than in adults. Constitutional disturbances was not so marked as in older patients. Chilly sensations were occasionally present. The fever was usually slight. Headache was constantly present. The face was flushed and conjunctivæ injected. The tongue was coated, appetite lost, and vomiting was an occasional symptom. As in adults, the bowels, as a rule, were constipated. The children were restless, and preferred to walk about during the illness.

In four cases an icteroid hue of the face and conjunctiva was observed, and in two there was marked jaundice. In these cases the attack was more severe. Pains in the abdomen were usually complained of. In children the disease was first manifested by the occurrence of a chill, following which the temperature ranged from 100° to 103° F.; pulse 100 to 120. A general hyperesthesia of the skin was also noticed. When touched the child would cry out as though in pain. In three cases the attack resembled typhoid fever, and continued over two weeks. Swelling and redness of the right knee and ankle developed in a boy of twelve years of age during the attack, and continued five days. This is the only instance in which this symptom was observed, although it has been described as one of the features of dengue.

The treatment was entirely symptomatic. In many instances treatment was not necessary. The bowels were usually moved by means of small doses of calomel, followed by a saline. Quinin was at first administered, but its use was soon abandoned. The main treatment was directed to the relief of pain and the reduction of temperature. For this purpose codein, in combination with acetanilid and caffeine citrate, often sufficed. Occasionally morphin was necessary. Applications of ice proved very valuable in causing a reduction of fever and for the relief of the pains in the abdomen and head. For sleeplessness, bromids were given, but often with but little effect. In such cases whiskey had a favorable action, and was freely given. For the nausea and vomiting small doses of creosote proved beneficial, while in more severe cases the hypodermic administration of morphin became necessary. During convalescence strychnia and preparations of phosphorus for the nervous prostration proved very helpful.

*The Cuvier Prize Awarded to Professor Marsh.*—The Cuvier prize of the Academy of Sciences, Paris, value 1500 francs, has been awarded to Professor Marsh of Yale University. This prize is awarded every three years for the most noteworthy work on geology or on the animal kingdom.

### FOREIGN BODIES IN THE CORNEA.

By EDWARD JACKSON, M.D.,

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PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC; SURGEON TO WILLS' EYE HOSPITAL.

A PATIENT'S statement that there is a foreign body in the eye is not altogether reliable, for the presence of inflammation, swollen conjunctival veins or papillæ, or an abrasion of the conjunctiva, may all give rise to the same sensation. Even when a foreign body has previously been present the resulting injury to the cornea or conjunctiva may cause a similar sensation, though the removal of the invading material has already been effected. On the other hand, should such a body be so deeply embedded in the cornea that it does not give rise to irritation of the conjunctiva, it may remain for several hours or even days without causing any discomfort whatever, and the circumstances under which it gained entrance may be quite forgotten. The symptoms of inflammation come on gradually, and the distinctive sensation of a foreign body may be absent; so that either a positive or negative history may be equally misleading.

Hyperemia, when present, is very suggestive of a foreign body in the cornea, though it will usually require some hours or even days for its development. It is always partly pericorneal. If the foreign body is located near the center of the cornea the pink discoloration will extend around the entire limbus, if it is located near the margin the hyperemia will be greatest in the adjoining portion of the limbus. On the other hand, if the foreign substance is embedded in the conjunctiva or lid the redness will be irregularly distributed.

The diagnosis, however, rests upon the results of careful inspection. For this purpose either oblique illumination with a lens or diffuse daylight is necessary. In the use of the first the cornea should be strongly illuminated, the condensing lens being so held as to concentrate the light upon it, and the eye should be viewed from different points. A foreign substance of dark color may be best detected against the iris, while one which is light in color will be most easily found when it is strongly illuminated and seen against the dark background of the pupil. With inspection by direct daylight, the surgeon's eye should be so placed that it will receive the reflected light from different parts of the cornea. An irregularity in the corneal surface, such as is caused by an abrasion or the presence of a foreign substance, will cause a corresponding irregularity in the reflection. Slight irregularities of the corneal surface may, however, be filled with mucus, thus concealing any body which may be present. To prevent this the cornea should be wiped with absorbent cotton.

A substance embedded in the cornea may also be detected by means of the ophthalmoscopic mirror, a strong convex lens being placed behind it. Thus, on viewing the cornea from different directions, the foreign body will in some position be brought in front of the illuminated pupil and will appear black against the red background.

When a body is allowed to remain in the cornea, the resulting inflammation gradually increases and suppuration usually occurs. By this process the invading substance is loosened and either rubbed off by the lids or washed away by the lacrimal secretion, after which the ulcer slowly heals. In a few cases there seems to be an active proliferation of tissue, mostly epithelial, which covers the foreign body. In this way it may be retained and be the cause of an inflammation which may continue weeks or months. In such a case the tissue covering the foreign substance appears dry and white, and to it runs a sharply defined area of conjunctival or subconjunctival hyperemia, resembling that which is typical of a fascicular keratitis. A series of cases in which foreign bodies were thus retained in the cornea for periods varying from three weeks to eighteen months have been reported by the writer (*Brit. Med. Jour.*, June 8, 1897). Extremely minute foreign bodies, so retained, gradually making their way with the lymph currents toward the center of the cornea, are by some authorities regarded as the cause of pterygium.

It is hardly necessary to say that treatment implies the prompt removal of the cause of the trouble, with the single exception of powder stains or "grains" in the cornea, which have been present long enough to have become somewhat disintegrated and to have ceased to be a cause of irritation or inflammation. Any damaged corneal tissue should also be removed; for if left to come away of itself it will result in a delay in the healing process. Thorough treatment also implies removal of the brown stain which sometimes surrounds a foreign body in the cornea. I have never observed a case in which the presence of such stained tissue was permanently tolerated.

Removal of the foreign substance is usually accomplished with the aid of a spud. Varying forms of this instrument have slight advantages in different cases. The instrument which seems to me most generally useful is straight with a rather small or pointed end, not sharp, but still more nearly approximating a point than many of the spuds to be found in the shops. This instrument should not be used as a scraper, and removal of the foreign body will not be facilitated by sudden "digs" made with it. It should be carefully and accurately placed in contact with the cornea, by the side of the body to be removed, and

then pressed rather firmly into the tissue until, by a wedge-like action, the body is forced out, the spud passing under it. To easily accomplish this it is necessary that the surgeon's hand and the patient's eye be as steady as possible.

Previous to attempting removal the eye should be thoroughly anesthetized by means of one or two instillations of a four-per-cent. solution of cocain, or a one-per-cent. solution of holocain. Meanwhile, the patient should be accustomed to the presence of the fingers and the instrument before the eye by touching the organ in question with the fingers and by moving these close in front of it until it is demonstrated that there really is nothing to fear. The patient should be urged to look at some object steadily, regardless of what is being done to the eye.

When the particle to be removed is a splinter of wood or a piece of grass or grain more or less firmly embedded, it may be necessary to deal with it much as one deals with a splinter embedded in the skin. A small needle or the point of a Graefe knife should be passed down alongside the splinter, to its end if possible, and then made to cut outward, so as to provide a free opening. The spud may now be used to turn out the foreign body in the ordinary way.

"Powder grains" in the cornea during the early stage of irritation and inflammation should be removed by means of the galvanocautery. Such particles are not actually "grains," but bits of charcoal diffused through the corneal tissue; and they can only be removed by destruction of the tissue involved. Any attempt at their removal with needles or knives favors the extension of infection and inflammation.

When a foreign body is deeply embedded in the cornea and extends through into the anterior chamber, its removal is a more serious matter. In such cases it is usually found that the escape of aqueous humor has left the eyeball comparatively soft, and allows the iris and lens to fall forward and perhaps to come in contact with the foreign body. In such cases early removal is particularly important. Until the time of operation the eye should be kept perfectly quiet, so that an opportunity is furnished for the accumulation of aqueous humor and restoration of the anterior chamber. The eye should, of course, be anesthetized by means of a strong solution of cocain. A broad needle, not lance-shaped or like the keratome, but one gradually tapering to a width of three millimeters at a distance of eight to ten millimeters from the point, should be thrust through the cornea near the foreign body, so as to pass beneath it, and the point made to engage again in the cornea, but not to entirely perforate it. Having the needle passed back of the foreign body, so as to prevent it from being pushed

into the anterior chamber or from injuring the iris or lens, removal of the body may be easily accomplished.

In all these manipulations some sort of a magnifier will prove of great assistance. The binocular magnifier, described by me in the *Archives of Ophthalmology* for April, 1897, is the most satisfactory; it gives the greatest enlargement compatible with sufficient working space between the lens and the eye, and offers the benefit of binocular vision without any excessive strain of convergence.

#### ARTERIOSCLEROSIS AS A CAUSE OF KIDNEY DISEASE.

By EVERETT J. BROWN, M.D.,  
OF DECATUR, ILL.

MOST observers now agree that the kidney changes accompanying a general arteriosclerosis are secondary to the constitutional affection. On the other hand, there are writers who still hold to the theory that all sclerotic changes in the blood-vessels follow a primary fibrous change in the kidneys; that in most cases of general arteriosclerosis the most serious pathologic results are manifested in the kidneys, heart, brain, and liver. Bright himself noticed that chronic renal disease was often associated with hypertrophy of the left ventricle, and all subsequent investigators have confirmed his observations. Grainger Stewart found cardiac hypertrophy in forty-six per cent. of the cases of granular contracted kidney; Loomis, in sixty per cent; Dickinson, in seventy-four per cent., and Galabin in eighty per cent.<sup>1</sup>

Strumpell is inclined to regard the effect of a general arteriosclerosis upon the kidneys as more important than the changes induced by it in the heart and brain, and he only mentions the "granulated" senile kidney as being largely due to atheroma of the renal arteries. In writing of the etiology of arteriosclerosis, he classes nephritis with excessive use of alcohol, syphilis, rheumatism, gout, and lead-poisoning as the cause of the affection in question. Regardless of whether the kidney lesion is primary or secondary, there is no doubt that renal symptoms occur in the majority of cases of general arterial sclerosis. In nearly all autopsies, according to Osler, in which this disease is found there are also evidences of kidney degeneration—either a diffuse or localized sclerosis of the interstitial tissue. It is seen in a typical manner in the senile form of nephritis, and it not infrequently develops earlier in life as a result of chronic diffuse nephritis. Osler further states that it is difficult to decide clinically whether the arterial or the renal disease is the primary affection.

The degeneration which occurs in the general arterial system is also found in the arteries of the kid-

neys, and in all cases there is an excess of fibrous tissue. Gall and Sutton noticed the predominance of the fibrous change in the external coat of the arteries, in the form of a fibroid hyperplasia, which they call a "hyalin fibroid transformation." The internal coat was also sometimes markedly thickened, and the muscular coat showed a relative increase in thickness, though in some parts the latter was wasted and degenerated. In forty post-mortem examinations in cases of chronic renal disease, Loomis found, as regards the systemic and renal arteries, that the external coat was thickened in many cases; it alone was diseased in twelve instances, and the muscular coat was thickened in five. In twenty-one cases in which the kidneys were involved this fibrosis could not be distinguished from that of the neighboring interstitial tissue or from that about the glomeruli. From this it is seen that the morbid changes are external to the arteries as well as in their walls.<sup>1</sup>

In regard to the effects of chronic renal disease on the heart and blood-vessels, Dickinson says:<sup>2</sup> "There occurs a hypertrophy of the cardio-arterial system which is unusual from its origin to its termination, and comprises not only the ventricles and arterioles, but affects also the intermediate arteries of every size." He has further shown from post-mortem evidence that the arteriosclerosis is more constant than cardiac hypertrophy in relation to chronic renal disease; on the other hand, in some cases of renal involvement the arteries are perfectly normal while the cardiac disease is marked.

The presence of renal disease may be suspected in every case in which the four pathognomonic signs of general arteriosclerosis are present. These signs are: Increased arterial tension, palpable thickening of the arteries, hypertrophy of the left ventricle, and accentuated aortic sound. Even before direct evidence of disease of the kidneys is presented its existence may be suspected whenever a forcible heaving of the left ventricle and increased tension of the blood-vessels are noticed.<sup>3</sup> On the other hand, in many cases of arteriosclerosis there are few symptoms except those of the renal disease.

In a typical case of general arteriosclerosis with involvement of the kidneys the symptoms are somewhat as follows: The patient is a man, over forty years of age, who presents a history of having always enjoyed robust health. His appetite is good, often excessive, and his diet has consisted largely of meat and other highly nitrogenous foods. His occupation is such as to give him little opportunity for physical exercise, and his inclinations in this direc-

<sup>1</sup> Sanson, "Twentieth Century Practice of Medicine," vol. iv.

<sup>2</sup> *Lancet*, July 20, 1895.

<sup>3</sup> Sanson, *loc. cit.*

<sup>1</sup> Sanson, "Twentieth Century Practice of Medicine," vol. iv.



tion are slight. He has a healthy appearance, possibly a florid complexion, and on slight exertion becomes short of breath. He has some dyspepsia, headache, or maybe a recurring bronchorrhea. At night he finds it necessary to rise twice or oftener to void his urine, which is pale and increased in quantity, but quite clear and free from sediment. The specific gravity of the urine is low—1012 to 1018—and there is a diminished amount of urea and a small amount—often a mere trace—of albumin. Microscopic examination reveals the presence of a few small hyalin casts. The pulse is full, hard, and easily compressed, and the artery is palpable between beats, and even when it is firmly compressed with the finger its outline can still be felt below the point of pressure. At the aortic interspace the second sound of the heart is distinctly accentuated, and at the apex the pulsation is abnormally strong, and is noticed lower down and to the left, showing the presence of cardiac hypertrophy.

Such a case as has just been outlined requires years for its development, and evidences a constant progression toward death, either from uremia or one of the concomitants of the accompanying arteriosclerosis, such as apoplexy from a ruptured cerebral vessel, an embolus, rupture of a thoracic aneurism, gangrene from an obliterating endarteritis, or a moist gangrene from embolic occlusion of the large artery of an extremity.

In treating old men and women for the various pathologic accompaniments of senility, all physicians have noticed that although the urine of such patients, after frequent examinations, shows nothing abnormal except, perhaps, a low specific gravity and polyuria, yet just before death they develop symptoms of uremic poisoning and suppression of urine, and when the kidneys are examined post-mortem they are found to be contracted. The nephritis of arteriosclerosis is a much more common disease than is usually supposed, and the clinical picture is not always as pronounced as my description of a typical case would imply. The morbid picture is often composed of a series of vague and indefinite symptoms which are difficult of interpretation. The changes in the heart and circulation often produce subjective symptoms referable to the kidneys long before any are noticed by the physician. A life-insurance examination may perhaps reveal an unsuspected nephritis. Disturbances of vision lead many such patients to consult an oculist, who is the first to discover changes in the fundus of the eye pointing to a kidney lesion, an indication which is confirmed by a subsequent analysis of the urine.

The prognosis depends upon the age of the patient, the etiologic factors in the disease, and es-

pecially upon the stage of the process affecting the renal tissues. Mahomed<sup>1</sup> describes a pre-albuminuric stage of Bright's disease, to be detected by the increased arterial tension before the commencement of any kidney change or the appearance of albumin in the urine. By carefully observing the degree of tension of the radial artery, much valuable information in regard to the progress or arrest of the disease may be obtained, for with the diminution of dropsy and albumin the artery will be found more compressible, while with the increase of arterial tension there will be an increase of albumin, increased hypertrophy of the left ventricle, increased edema, retinal hemorrhages, and uremic symptoms. As the kidney lesion is only one of several morbid elements in this disease, the prognosis depends much upon the ability of the other organs to continue the performance of their functions. Many cases terminate with a predominance of nephritic symptoms, such as dropsy and uremia, while others present a perfect clinical picture of chronic valvular heart disease with a loud blowing murmur at the apex, which may deceive the practitioner. Other patients die from cerebral hemorrhage, sudden rupture of a thoracic aneurism, or from gangrene of the extremities. In some cases a severe bronchitis with marked emphysema develops, and often in the senile form of the disease the cause of death is ascribed to "old age," not only by the laity, but by physicians as well.

The following cases illustrate two forms of general arteriosclerosis, in one of which there was a predominance of renal symptoms, and in the other prominent renal manifestations, with a fatal termination, immediately due to circulatory changes.

CASE I.—H. B., farmer, aged forty-nine years. December 22, 1896, examination showed the presence of general arteriosclerosis. The pulsation of the temporal and radial arteries was very forcible, and the vessels themselves were very tense and easily palpable. The area of heart-dulness was increased, and the apex beat was in the seventh interspace. There was general edema, especially marked in the feet, and some dyspnea and insomnia. Constantly recurring headache had been a feature of this case for several years. At this time he was still able to continue at his daily work. He arose three or four times every night to urinate. The result of the analysis of the urine was as follows: Color, pale yellow; total quantity, 75 ounces; reaction, acid; specific gravity, 1018; albumin, three-fourths volume. The microscope showed the presence of many large and small granular and hyalin casts. Sugar was not present. By means of a proper diet and the free administration of eliminants the dropsy was much improved.

<sup>1</sup> Mahomed, *Medico-Chirurgical Trans.*, p. 197, 1874.

CASE II.—Mrs. A. S., farmer's wife, aged forty-seven years, was in the midst of the climacteric. At the time of examination she menstruated every three or four months. She complained of universal pains, frequent headache, and palpitation of the heart. There was some swelling of face and extremities, much dyspnea on slight exertion, bronchitis, pain after eating and flatulence. Physical examination showed a systolic murmur at the apex, and increased area of heart-dullness. The apex beat was to the left of the nipple line. The palpable arteries were tense and cord-like, but not tortuous. The specific gravity of the urine was 1.018. There was present considerable albumin, but no sugar. Patient was kept under observation four years, and by means of digitalis, tonics, and eliminants she was made more comfortable. Much of the edema and dyspnea disappeared. Finally, however, she was seized with a sudden pain in the left leg, the left foot became cold, the tibial arteries ceased to beat, and death occurred within a few days from moist gangrene due to the lodgment of an embolus at the bifurcation of the popliteal artery.

## NEW INSTRUMENT.

### FORMALDEHYD DISINFECTION.

By JACOB R. JOHNS, M.D.,  
OF PHILADELPHIA.

THE difficulty attending the application of formic aldehyd to general disinfection has led to the devising of a score or more lamps and generators supposed to meet the indications. Many of these, because utterly devoid of merit, have never come into prominence, while others, which possess some value and a more or less restricted field of usefulness, are quite well known. No less than seven different forms of apparatus were exhibited at the last meeting of the American Public Health Association in Philadelphia. The difficulty appears to lie in the liberation of the gas in its most active form in sufficient volume and with sufficient rapidity to overcome all unavoidable loss through holes and crevices, and thus do the work thoroughly.

Three methods requiring different apparatus are in vogue. In the first and oldest, the gas is generated directly from wood alcohol upon the principle of retarded combustion; in the second, it is liberated from pastilles of paraformaldehyd exposed to the action of flame, and in the third, the gas is derived from an aqueous solution of known strength. In the first two classes the apparatus must be confined in the closed apartment which is being disinfected, where it is a source both of danger and uncertainty of action.

If lamps burning wood alcohol are used, the operator can never know what per cent. of alcohol is completely consumed and what is changed to available formaldehyd gas. The volume of gas generated is always uncertain, and never large even when the apparatus is operated by an experienced chemist. In the effort to obtain sufficiently large volumes of gas during the same period of exposure the second and third methods have been devised.

In the third method a new difficulty was encountered, that arising from polymerization, which promptly arrests the process.

The failure of the last process mentioned led Trillat and others to devise a means for generating the gas under pressure. This requires an extremely bulky apparatus and introduces a new element of danger, that from explosion. The latter element and the fact that polymers are formed led to the employment of the polymerized product in pastilles, which, while it gives better satisfaction than is obtained from alcohol lamps, affords but little gain in either the volume of gas or the rapidity of elimination.

Another method, intended to overcome all the foregoing difficulties, is that used in the apparatus here shown. (Fig. 1.) The method is both simple and novel. The apparatus consists of a copper coil placed over a Swiss

FIG. 1.



Formaldehyd generator.

heating lamp and beneath a receiver in which is placed commercial formaldehyd, an aqueous solution containing forty per cent. of formic aldehyd gas, and ten per cent. of methyl alcohol to make the solution permanent. A small valve protects the opening from the receiver into the coil. When the latter is red hot the valve is opened to admit a small stream of the formaldehyd solution into the coil. Instantly it is vaporized, and the vapor containing the free gas is heated to upward of 1000° F. as it passes through the coil and a short hose through the key-hole, or other suitable opening, into the room to be disinfected. The apparatus is always on the outside of the apartment being disinfected, and under constant observation. The process does not permit of the formation of polymers, nor present the least danger of explosion, since the gas is not generated under pressure. It is especially adapted to apartment disinfection. With such an apparatus one man can easily disinfect upward of twenty apartments per day.

This method was introduced by the Sanitary Construction Company of New York, and the apparatus is made by the H. K. Mulford Co. of Philadelphia.

## MEDICAL PROGRESS.

*The Parasites of Malarial Fever.*—THAYE (*Yale Med. Jour.*, January, 1898) gives the results of careful observations made in 1719 cases of malarial fever. He finds three distinct parasites; the tertian, the quartan, and the estivo-autumnal. No transitional forms have ever been observed.

The tertian parasite, in its earliest stages, is a small body lying within the red blood-corpuscle. It is possessed of active ameboid movements, but on account of its lack of color is observed with difficulty. However, it is readily detected by the practised eye, even in fresh unstained specimens. As the parasite grows it accumulates fine pigment granules which at the end of thirty-six hours have gathered together at one point, usually the center of the organism. The parasite next undergoes sporulation, and is separated into its central pigment clump and a surrounding mass of small, round, hyalin bodies, which are complete young parasites ready to attack fresh red blood-corpuscles. The life history of a parasite occupies forty-eight hours, and sporulation takes place in all the parasites at the same time, thus producing the febrile paroxysm in the patient.

The quartan parasite, in its early stages, greatly resembles the tertian, though its ameboid movement is weaker. As it grows the pigment granules are larger and darker than those of the tertian, and are inclined to gather in the periphery. Sporulation proceeds along symmetric lines, the parasite dividing into from six to twelve regularly arranged radial leaflets. The cycle of development requires seventy-two hours.

In both tertian and quartan infections more than one group of parasites may be present in a patient, giving, in double tertian and triple quartan infections, a chill every day. In double quartan infections there will be a chill upon two successive days and none upon the third.

The estivo-autumnal parasite is associated with fever which is more or less irregular. This form is rarely found in the milder malarious districts. The parasite is a bi-concave disc with a well-marked central depression, so that it may appear like a ring. It is smaller than the tertian and quartan parasites and materially differs from them in the fact that it is usually found in the circulation only in its earlier stages of development. The later stages of development may be observed in blood aspirated from the spleen. This procedure is not without danger and should be carried out with the strictest aseptic precautions. After a certain length of time, varying from five days to two weeks, there appear in the circulation crescentic bodies with sharp refractive outlines containing pigment. If these are closely watched filaments may sometimes be observed to burst out from the parent cell and sometimes to break away from it to rush off alone across the field of vision. In the estivo-autumnal parasite sporulation does not occur in groups and hence the irregularity or continuousness of the fever.

The existence of these three distinct types of parasites has been proved not only by clinical observation, but further by careful inoculation experiments. Fresh blood

from an infected patient, if introduced under the skin of a healthy man will invariably reproduce the same type of fever. There are still many questions in connection with this subject which cannot be definitely answered. Why should the process of sporulation cause fever? This is presumably because some toxic substance is set free from the parasite itself. The significance of the flagella has also puzzled observers. Recently MacCallum observed the penetration of a free flagellum into one of the non-flagellate parasites. This observation strongly supports the idea previously advanced that flagellation and fertilization are intimately associated processes. At any rate, the old idea that flagellation is a degenerative process seems absolutely untenable.

As to modes of infection, there are at present considered to be three, *vis.*: by air, water, and by the bites of insects, especially the mosquito. The last is at present most popular. At the close of this most interesting article Thayer insisted upon the importance of the discovery of the parasite in the blood as the only diagnostic sign of malarial infection; a sign in many ways parallel to the demonstration of the tubercle bacillus in phthisis, or the Klebs-Löffler bacillus in diphtheria.

*Results of Postural Drainage.*—BURRAGE (*Annals of Gynec. and Pediat.*, January, 1898) has of late employed the postural method of draining the peritoneal cavity after abdominal operations, described by Clark in the *Johns Hopkins Hospital Bulletin* of April, 1897. This method consists in flushing the peritoneal cavity with sterile salt solution, wiping it dry with gauze, and then introducing from one to two pints of sterile salt solution. The abdomen is then closed and the foot of the bed raised eighteen inches, thus favoring a flow of fluid from the pelvis to the diaphragm, where absorption of liquids contained in this great lymph-sac proceeds with the greatest rapidity. By the use of this method it is possible in many cases to close the abdomen under circumstances in which drainage is usually considered necessary. Clark said, in fact, "the greatest safety lies in closing the abdomen without drainage except in cases of purulent peritonitis, or in operations in which there has been extensive suturing of the intestines, and also in a few other rare conditions."

The twenty-seven patients which Burrage mentions as having been treated by this method all recovered, although in this respect the new treatment did not differ much in result from that previously used in the same hospital in 167 celiotomies performed during the last eighteen months, in only one of which was there a fatal termination. In the new method it is well to keep the foot of the bed elevated at least thirty-six hours. The salt solution increases the amount of urine and diminishes thirst. Vomiting is facilitated by elevation of the foot of the bed. Swallowing is rendered more difficult, but is still easily possible if slowly performed. There is less nausea and less abdominal distention and pain. In two very fat women there was some embarrassment of respiration. The writer expressed himself as well satisfied with the new treatment, which he considers a distinct advance in abdominal surgery.



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SATURDAY, MARCH 12, 1898.

## THE BACTERIOLOGY OF RHEUMATISM.

ABOUT ten years ago it was announced by Bordas that he had discovered the micro-organism of acute articular rheumatism, and attention was called to his claims by an editorial in the MEDICAL NEWS. He asserted that the organism which he had isolated possessed certain definite bacteriologic characteristics, and that if it was injected into the body of the lower animals they immediately suffered from inflammatory joint affections, which in every way resembled those commonly seen in acute articular rheumatism. It was also stated that this micro-organism, which Bordas asserted was the cause of acute articular rheumatism, was peculiarly susceptible to salicylic acid, and so it was pointed out, if we could believe in this research, that the explanation of the value of salicylic acid in acute articular rheumatism had at last been discovered.

Whatever promise, however, was held out by this research was taken away from us by the failure of other investigators to confirm its results, and while the profession has become, with each succeeding year, more and more convinced of the fact that acute articular rheumatism is distinctly an acute infectious disease, definite statements as to the character of the

infecting micro-organism have not been forthcoming. In this connection, therefore, a more recent research (*Société de Biologie*, July, 1891) which was published by Dr. Achalme of Paris, is of considerable interest. He claimed to have demonstrated a bacillus which he obtained in patients suffering from acute rheumatism, and he described various means of differentiating it from other micro-organisms of similar appearance.

Since this paper was published, Riva, Cheosteh, Michaelis, and Triboulet and Coyon have carried the investigation still further, and the latter claim that an elongated coccus found in pairs, or grouped in chains at times, is responsible for the malady. It is an anaerobic organism, easily cultivated in bouillon or ascitic fluid and is easily stained by thionin, but it is not discolored by the Gram method. These investigators assert that this is the real organism of rheumatic fever, and that the bacillus of Achalme is found as a complicating infection in certain cases. Unfortunately, as we see so often among other researches in the early stages of our knowledge concerning infectious maladies, these investigations of Triboulet and Coyon have in turn been criticised by other bacteriologists, who assert that certain staphylococci, which are in every way comparable with the coccus which it is claimed is the cause of acute articular rheumatism, are found in rheumatic cases, and Singer of Vienna has asserted that acute rheumatism is only a form of acute septicemia without a specific microbe. Whatever may be the truth of the claims put forward by these various investigators, practising physicians must watch with interest any conclusions arrived at in regard to the bacteriology of a malady which is a millstone about the neck of scientific medicine.

## THE DETERMINATION OF SEX.

It is not improbable that Professor Schenk, of Vienna, would gladly recall the idle words anent the influencing of sex by giving certain dietaries to the parents, if he knew the kind of company that his ridiculous so-called discovery was to lead him into. Not that he ever said one-tenth of all that has been attributed to him, but it matters not how little escaped his lips, he said far too much. It contributed to the destruction of his scientific reputation; the public press has done the rest. The immediate

result of the propaganda, much more serious than the smirching of the Herr Professor's reputation, has been the development and uprising of "Sex-regulators" all over the country. It is not surprising that the Nutmeg State should furnish a number of them. Its inhabitants have made a record for themselves concerning their shrewdness which has come thundering down to posterity. According to the *Sun*, a Danbury physician declares that not only can he tell the sex of an unborn child, but that he knows the secret whereby it is possible for human beings to produce male or female at will. Oh, enviable Danbury physician! If you are truthfully and accurately reported, please let the male child come often enough to balance the awful disproportion now existing between the adult sexes in your own State; and please, furthermore, after the accomplishment of this worthy work, for which woman, particularly spinster woman, will rise up and call you blessed, transfer your presence and remain sufficiently long in New Hampshire to allow the evidence of your power, mysterious and concealed in the intricate recesses of your concept center, to show itself sufficiently to at least encourage the forlorn maidens of that deserving State. For ourselves and the West we ask nothing. We are deeply cognizant that the steamship companies are supplying a demand for husbands in "wooly" sections of our country, by dumping in the refuse of semi-civilized Europe, and that they will continue to do so until restrained by Congress, or until they have exhausted the pauper and criminal supply of the Old World, the degenerate Old World. We know, moreover, that the decadent imported male cannot withstand the rigors of the New England climate, and that, therefore, the discouraging disproportion of females there cannot be remedied in this way. Not that there are too many females in New England, there never can be too many. They are only proportionately too many, and it is this that we ask the doctor with the secret to set right. We confess to a fear that our petition will be of no avail because the concluding sentence of the report which we quote from the *Sun* is portentous, to say the least. It reads: "The doctor is willing to impart his knowledge to families of which he is the regular physician." Let those who are tired of the sameness of sex in their progeny enroll themselves at once, for this physician will

soon be the apotheosis of the family doctor and the most conspicuous type of "the busy practitioner."

#### **THE MARINE HOSPITAL SERVICE AND THE ALABAMA SMALLPOX EPIDEMIC.**

DURING the closing days of last year, the Mayor of Birmingham, seconded by State Health-officer Sanders, with the approval of the Governor of Alabama, requested Surgeon-General Wyman of the Marine Hospital Service to aid the local authorities in suppressing an epidemic of smallpox in Birmingham, Alabama. Accordingly, on December 31st, Passed Assistant Surgeon G. M. Magruder, who has had extended experience in dealing with this disease, and who managed in behalf of the Government the colony of negroes who were returning to the United States from Mexico in 1895, and among whom smallpox had broken out at Eagle Pass, Texas, was placed in charge of the undertaking. Dr. Magruder reached Birmingham January 4th, and immediately began a systematic campaign against this widespread epidemic, for it was not confined to Birmingham, but had spread into many of the adjacent counties. It had existed in Birmingham since the middle of July, and the total number of cases recorded to the close of 1897 was 406, out of which number there had been but 15 deaths. The general character of the epidemic had been mild, and the disease confined mostly to the negro population. Indeed, so mild had it been that but little attention was paid to it by the local authorities, and cases in full bloom were occasionally found in persons walking about the public streets. It was not regarded by the class affected as smallpox, but by them was called "African itch."

It appears that there are but few local health organizations in Alabama, and the execution of such laws as relate to protection of the public health is confined to judges of probate for the various districts. During this outbreak no attempts at general vaccination had been made, no restrictions placed upon persons suffering from the disease, and in the outlying counties no effort made to isolate them. As a result, in one county, Lowndes, for example, the officials estimated the number of cases which had occurred at from 2000 to 2500, but it was admitted to be a mere generalization without the basis of recorded cases. Facilities for vaccination were provided by the purchase of vaccine by the authorities, who distributed

it among local physicians. The lack, however, of any systematic control of cases resulted in continued spread of the disease, until the authorities had expended all the money available for prophylactic measures, and when at the end of their resources made application, as above stated, for Federal aid in suppressing the epidemic.

Dr. Magruder immediately organized a corps of thirty assistants, and with an ample supply of vaccine virus, began on January 9th, a house-to-house inspection in Birmingham, vaccinating every person when such action was indicated. This course of procedure was immediately adopted, upon the acceptance by the authorities of Birmingham and Jefferson County of aid from the Government. A lazaretto was established upon a military basis, and communication between it and the town was rendered impossible. From January 9th to January 26th, inclusive, 14,751 houses and 58,812 persons were inspected, of the latter 25,042 were vaccinated; 144 houses were disinfected. This work was so efficiently done that the number of cases occurring in Birmingham and other localities in Jefferson County was reduced from seventy per week, as reported on January 15th, to eighteen per week as reported on February 5th. Two house-to-house inspections were made in Birmingham, and a third partial one followed.

It is to be noted that the smallpox exists in the mining districts of Kentucky and Tennessee, and the origin of the epidemic in both States was undoubtedly due to the migration of the negroes employed in the mines of Alabama to similar localities in the two States mentioned.

Information has been received of the prevalence of the disease in at least twenty-five localities in Alabama. The attention of the State health-officer has been called to these facts, but it is said that he has no State funds with which to meet the emergency. It is obviously the duty of each locality to protect itself from the spread of this well-understood epidemic disease; whatever action is taken by the Marine Hospital Service is with a view to prevent its spread to adjoining States. Dr. Magruder, with two or three officers of the Service, acting on orders from Surgeon-General Wyman, is visiting in succession the infected localities and instructing the local authorities how to act. In several instances he has induced the county and town officials to bestir themselves and

raise the necessary funds, which it would seem the State health-officer should have done. Expenditures for vaccine and inspection service have been assumed by the general Government only when all other means of meeting them have failed, and only as a part of interstate quarantine procedures.

#### FAIR CRITICISM AND COMMON SENSE.

THERE is no danger of any misunderstanding among the readers of the MEDICAL NEWS as to its position upon the question of the contagiousness of pulmonary tuberculosis and the importance of placing that disease among those requiring hygienic control. Nor can the strained, artificial efforts of the *Philadelphia Medical Journal* avail to place the MEDICAL NEWS in a false light upon this subject. The readers of the former journal, as well as those of the MEDICAL NEWS, like fair play and honest criticism, and when a contemporary sneaks in at the back door, snatches a sentence from its legitimate connections in a book review, and sets it up as the complete embodiment of editorial creed upon a grave pathologic and hygienic question, some other motive is apt to be ascribed to the act than an honest seeking after truth or the promotion of ordinary ethics. The motive is not far to seek, and the method is not such as becomes honorable criticism.

The medical profession that has read or that may read the quoted sentence as used by the reviewer in discussing the excellencies of Dr. Meigs' volume on the "Origin of Disease" (MEDICAL NEWS, February 26, 1898, p. 287) will not consider itself besmirched by epithets or saddled with false motives. A little common sense is all that is necessary to keep the judgment clear on those points, and he errs grievously who denies the medical profession its share of that commodity—as our contemporary apparently does.

#### ECHOES AND NEWS.

**Cameron Prize Awarded.**—The Cameron prize of the University of Edinburgh has been awarded to Professor T. R. Fraser for his researches in practical therapeutics.

**Measles on English Warship.**—An extensive epidemic of measles is prevailing among the cadets on board the English training-ship "Britannia" at Dartmouth, England.

**"Black Blister" in India.**—According to the daily papers, an epidemic of "black blister" has broken out in



the State of Hyderabad, and fifty deaths are occurring daily.

**A Donation to the Pasteur Institute.**—The Pasteur Institute of Paris has received a donation of 50,000 francs from Madame Emile Durand, to be used to promote the study of tuberculosis.

**For the Neuralgia of Herpes Zoster.**—The pain of both the prodromal and the post-eruptive stages is said to be relieved by the administration of lactophenin in 20-grain doses three times daily.

**Dispensary Bill Favorably Reported.**—The Senate Committee on Public Health has reported favorably the dispensary bill for New York City, which is designed to prevent the abuse of charity at such institutions.

**Biography of Ernest Hart.**—The widow of the late Ernest Hart is collecting the correspondence of her husband, together with information bearing upon his public work, to be used in preparing a biography of this distinguished man.

**Medical Students in New York.**—The recently issued annual report of the Board of Regents of the State of New York shows that there are 4025 students of medicine in the State, an increase of 150 over last year, and a gain of 605 within three years.

**Dissecting in Paris.**—According to the *Gazette des Hôpitaux* (Paris) there is a great scarcity of dissecting material in the medical schools of the French capital—less than half a body for each of the 1573 students who have been dissecting there this winter.

**The Tarnier Prize.**—By the will of the late Professor Tarnier a yearly income of 5000 francs is left to the Paris Academy of Medicine. Of this, 3000 francs is to form a prize to be known as the Prix Tarnier, which is to be awarded each year for the best work in obstetrics and gynecology.

**New York Medical College and Hospital for Women.**—Plans have been filed for a building to be erected on the north side of One Hundred and First Street, near Manhattan Avenue, for the New York Medical College and Hospital for Women. The building will be three stories in height, and will cost \$28,000.

**Retirement of Dr. Playfair.**—Dr. W. S. Playfair will soon retire from the duties of the chair of Obstetric Medicine and the Diseases of Women at King's College, London, as he has reached the age limit. Dr. Playfair has been connected with King's College and King's College Hospital for the past thirty-five years.

**Smallpox in Greenfield, Mass.**—Several cases of smallpox have been reported in Greenfield, Mass., and fears are entertained that the disease will become epidemic. A joint meeting of the board of health, selectmen, and physicians of the town has been held to decide upon measures for stamping out the disease.

**Disinfection with a Vengeance.**—It is announced by the publishers of a daily paper in an English town in which smallpox is epidemic, that each copy of the paper "is impregnated with a vaporous disinfectant which not only sterilizes the journal, but converts it into a factor for the widespread distribution of disinfecting influence."

**Memorial to Two Naturalists.**—A brass tablet has been placed in the biological laboratory of Johns Hopkins University in memory of James Ellis Humphrey, associate professor of botany in that university, and Franklin Story Conant, Bruce Fellow of the university, both of whom died in Jamaica last summer, where they were engaged in making botanic studies.

**Klondyke Doctors Must Pass Examination.**—According to the *Medical Sentinel*, medical men, who are planning to go to Klondyke in the hope of making a fortune by the practice of their profession, will find that they will not be permitted to practise unless they have passed an examination before the Board of Medical Examiners of the Northwest Territory at Calgary, of which Dr. Britt of Banff, N. W. Territory, is Registrar.

**Serum Treatment of Burns.**—Tomasoli, an Italian dermatologist, is treating extensive burns by daily injections of an artificial serum composed of a solution of sodium chlorid and sodium bicarbonate with the most excellent results. In an article in the *Monatsschrift für praktische Dermatologie*, Tomasoli states that serum from a scalded dog will kill a well one if injected into his veins, but that the fatal result can be prevented by an injection of the artificial serum just described.

**State Hospital for Consumptives.**—The Senate Committee on Public Health, to which was referred the resolution relating to the establishment of a State hospital in the Adirondack Mountains, New York, for the treatment of pulmonary tuberculosis, has recommended that a joint committee of five, two from the Senate and three from the Assembly, be appointed by the Legislature to make further investigation of this subject; that \$1000 be appropriated to meet any necessary expenses of such investigation, and that the committee report its conclusions and recommendations to the next Legislature.

**New York Sanitary Code.**—A general amendment to the New York Charter, relative to the public health, was recently introduced into the Legislature. It provides that new provisions, amendments, or additions to the sanitary code shall be proposed by the Board of Health and submitted to the Council of the City of New York. Within thirty days the Council shall take a vote upon the adoption of said provisions, and, if adopted by a majority, they shall become law. The present sanitary code shall be submitted, within sixty days after the passage of this act, for adoption or rejection by said Council.

**Hospital for Ruptured and Crippled Must Sue City for Funds.**—Comptroller Coleris is withholding the appropriation of \$26,250 made by the Board of Apportionment to the New York Hospital for Ruptured and Crippled upon the ground that the institution has been overpaid \$59,169.80

by the city for the board and care of pay-patients. Edward W. Sheldon, counsel for the hospital, contends that the fact that the city paid \$150 a year for each of these patients should not debar the hospital from receiving some money from them inasmuch as it costs the institution \$250 a year to care for each. Comptroller Coler refuses to pay over the money, and has advised the hospital to bring a friendly suit against the city, saying that the hospital has a right to the money set aside for its use unless the city should show a counter-claim based on the report of the Commissioners of Accounts.

**President of Health Board Resigns.**—Nathan Straus, president of the New York City Board of Health, sent his resignation to the Mayor on the third inst. In less than an hour Colonel M. C. Murphy was sworn in to fill the vacancy. Mr. Straus, who is interested in a number of business enterprises, pleaded in his letter of resignation that his private business required so much of his time that he found it impossible to continue longer in the service of the city. It is hinted, however, that Mr. Straus' resignation is due to the refusal of the Board of Estimate and Apportionment to allow him sufficient funds to carry on the work of the department according to the accustomed standard. Colonel Murphy was born in Limerick, Ireland, in 1841, and has lived in this country since he was seven years old. He was educated at the public schools, and afterward worked in the composing-room of a daily paper in New York City until the breaking out of the Civil War, through which he served. He was elected to the Legislature in 1866, and for fourteen years represented the lower district of the city in either the Senate or the Assembly.

**A New Building for the New York Skin and Cancer Hospital.**—On March 5th the New York Skin and Cancer Hospital dedicated and opened for occupancy its new building at the corner of Second Avenue and Nineteenth Street. Addresses were made, there was music, and tea was served by the women of the reception committee. The building is devoted exclusively to cancer and diseases of the skin. The new hospital easily provides seating capacity and treatment-rooms for more than one hundred in its dispensary, and the wards and private rooms are large enough to contain forty-two beds, and at the same time accommodations for the staff and employees. It is the only hospital in the country devoted exclusively to cancer and skin diseases. The new operating-room is spacious and well-lighted, and connected with it are an etherizing-room, an instrument-room, wash-room, and doctors' dressing-room. There is also a well-equipped microscope-room for study, and arrangements for photography. The bath system has an especial value for this hospital. The new building has an equipment of baths unique even among all the luxuriously fitted up and recently built hospitals in the country. Russian and medicated baths, constructed on the best models for cleanliness and efficiency, have been put in to supplement the ordinary baths, and the bath-rooms and appurtenances look particularly pure and inviting, being fitted up in marble, mosaic, and white enameled iron.

**The Patent on Antipyrin Expires in July.**—In July of this year the antipyrin patent, held by the Hoechst color-works, will expire by limitation, it having run its course of fifteen years—the span of life allowed to a German patent. During these fifteen years the monopolists have sold the drug at about \$12.50 a pound, but it will, of course, fall considerable in price the moment the manufacture and sale are permitted to competitors. It is anticipated that the price will shortly fall to at least half its present standard, when the usual convention of the principal competitors will probably be called and the inevitable trust formed, leading to a consequent rise in price. It is rumored that a number of chemical works are busy with the manufacture of antipyrin, so as to be prepared with it immediately upon the expiration of the patent.

**A New Measure.**—A measure which forbids the general distribution of pamphlets, circulars, and other advertisements in which symptoms of diseases are described, is now pending before the Ohio Legislature.

**Chloroform Anesthesia by Gaslight.**—An unusual accident recently happened in the Catholic Hospital at Herne, in Westphalia. A man who had been shot in the abdomen was brought to the hospital at night and immediately operated upon by gaslight. The operation was very difficult, and the chloroform narcosis was kept up for four hours. As a result of the decomposition of the chloroform by the gaslight, producing powerful chlorinated vapors, two of the surgeons and several of the Sisters of Mercy were overcome, and one of the latter has since died.

**Paris Hospitals and the X-Ray.**—The Municipal Council of Paris is considering a proposition for the establishment of a radiographic service in each of the hospitals under the control of the Assistance Publique, the service to be under the direction of the medical staff of the hospitals.

**Insufficient Hospital Accommodation in Paris.**—According to the *British Medical Journal*, the Assistance Publique can dispose of only 7529 beds in the various hospitals. On an average 1200 beds are vacant yearly, for which there are 8200 applicants in a suitable state for admission. M. Lampere, a member of the Municipal Council, advocates the establishment in the environs of Paris of a hospital with 6000 beds, all of which are to be placed at the disposal of the Assistance Publique.

**The French Congress of Alienists and Neurologists.**—The Congress of the French Alienists and Neurologists will be held at Angers on August 1st and the following days. The questions proposed for discussion are as follows: (1) Post-Operative Psychical Disturbances; (2) The Part Played by Arteritis in the Pathology of the Nervous System; (3) Transient Delirium from the Medico-Legal Point of View.

**The X-Ray and a Suit for Damages.**—Dr. Frank Boyd of Paducah, Ky., was recently sued by a patient for \$10,000 damages on account of a severe dermatitis which followed an X-ray examination. The plaintiff claimed that the

apparatus was carelessly employed, but a verdict was given for the defendant.

**Medical Examining Board of the United States Army.**—A board of medical officers to consist of Colonel Dallas Bache, Assistant Surgeon-General; Major Walter Reed, Surgeon; Major James C. Merrill, Surgeon; Captain William H. Arthur, Assistant Surgeon, and First Lieutenant Alexander N. Stark, Assistant Surgeon, is constituted to meet at the Army Medical Museum Building, Washington, D. C., on Monday, May 2, 1898, at 10 o'clock A. M., for the examination of candidates for admission to the Medical Corps of the army.

**A Preventive of Seasickness.**—A compressing belt which it is claimed will prevent seasickness, even in those most easily affected, is being patented by Galliano of Turin.

**Fiske Fund Prize Essay.**—The trustees of the Fiske Fund, at the annual meeting of the Rhode Island Medical Society, held June 3 1897, announced that they propose the following subject for the year 1898: "The Neuron Theory, as Related to Brain and Nerve Diseases, in the Light of the Most Recent Investigations." To the best essay upon this subject worthy of a premium they offer the sum of \$350. Further information may be obtained of the secretary of the trustees, George L. Collins, M.D., 223 Benefit street, Providence, R. I.

**Popularity of Glass Eyes.**—According to a German authority the astonishingly large number of 2,000,000 glass eyes are made every year in Germany and Switzerland, while one French house manufactures 300,000 of them annually.

**Water-supply of Mobile, Ala.**—Dr. George A. Ketchum of Mobile, dean of the faculty of the Medical College of Alabama, professor of medicine, has a lasting memorial for his long professional career in the Gulf City's water-works. To his energy and perseverance also is due the magnificent water-supply of the city. The water is brought from a distance of twelve miles, is pure, bright, and sparkling, and comes with satisfactory pressure. It is realized to-day that no one thing is more important for the health and welfare of a community than a good supply of agreeable and safe potable water. Dr. Ketchum has given such to Mobile, and that alone is a grander monument than stone or bronze could furnish.

## CORRESPONDENCE.

### OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

GLIA AND GLIOMATOSIS—BLOOD FINDINGS IN DISEASES OF THE CARDIOVASCULAR SYSTEM—AN INSTANCE OF LABORATORY INFECTION—STUDENT'S INFIRMARY AT THE UNIVERSITY HOSPITAL—NEW SCHOLARSHIPS AT THE JEFFERSON MEDICAL COLLEGE—DR. WILLIAM PEPPER—THE DECLINE OF THE TYPHOID OUTBREAK.

PHILADELPHIA, March 5, 1898.

SIMON FLEXNER, of Johns Hopkins University, during the course of some remarks on glia and gliomatosis,

at the last meeting of the Philadelphia Neurological Society, expressed the opinion that the neuroglia, unlike other connective tissues, is probably derived from the ectoderm—a generally accepted view at the present time. He divided glia tissue into two types—embryonal and adult; three varieties of cells are recognized: ependyma-cells, astrocytes, and astroblasts; glia fibers are now known to be separate, and not extensions from the protoplasm of cells, as formerly believed. Speaking of the different types of glioma, Flexner remarked that this growth is now known to be wholly distinct from sarcoma, and that the type of the tumor is dependent upon the type of cells which predominate in it. One variety contains a majority of astroblasts; another variety is chiefly made of astrocytes, and a third variety is composed mostly of ependyma-cells. Rapidly growing tumors show no differentiation between the cells and the fibers, and correspond to the embryonic type; while to the adult type belong those tumors of slower growth which show a differentiation between the fibers and the cells. Gliomatosis was considered in the light of a fault in development, and the relationship between gliomatosis and syringomyelia was thought possible of demonstration by future investigators.

Stengel, at the last meeting of the Pathological Society of Philadelphia, gave an interesting summary of the blood-findings in diseases of the cardiovascular system. These diseases he classed as inflammatory, degenerative, and mechanical. In the inflammatory type the chief characteristics of the blood consist in a variable degree of leucocytosis, reduction in the number of erythrocytes per cubic millimeter, and in the inconstant presence of certain pathogenic micro-organisms. The speaker mentioned, in passing, two instances of a very high percentage of polymorphous neutrophils in leucocytosis—the percentage of these cells in one instance constituting no less than ninety-nine per cent. of the total leucocytes, and in the second instance, 98.5 per cent. In the degenerative type, particularly when there is an accompanying atheroma, the blood examination may reveal the presence of small bits of foreign matter, and of oil-droplets. Concerning the mechanical type, important changes due to inspissation and dilution of the blood are found; very high counts are sometimes present, due to an increased viscosity of the blood and to peripheral stasis. Mitral lesions frequently produce counts of from five to seven million erythrocytes to the cubic millimeter, but a normal or subnormal count is more common in aortic disease.

The infection of bacteriologists while working with virulent cultures is so rare, in spite of the risks sometimes taken, that an instance of genuine self-infection with the Klebs-Löffler bacillus, reported by Riesman in the current number of the *Philadelphia Medical Journal*, is of no little interest. Briefly, the instance reported is as follows: A well-known Philadelphia bacteriologist, while transplanting with a pipet measured quantities of virulent cultures of diphtheria from one flask to another, accidentally received some of the culture directly into the back of his mouth; he spat out the mouthful of culture, and, without even rinsing his mouth with water, con-



tinued his work for the day. Two days later he noticed a white patch on both tonsils, from which cultures were then made, and a pure growth of the diphtheria bacillus obtained. Four thousand units of diphtheria antitoxin were then injected, 2000 during the morning, and a like quantity during the afternoon; and the next day 2000 units additional were given, with the final result that the membranous patches became smaller, and disappeared on the fifth day. During the appearance of the membrane there were no marked subjective symptoms. Notwithstanding local application of hydrogen dioxide and other antiseptic agents after the fifth day of the infection, cultures from the surfaces of the tonsils continued to show the presence of diphtheria bacilli for a period of almost three weeks after the total disappearance of all local signs. The incident, apart from its interest as an unusual occurrence, is of some value in determining the period of incubation of diphtheria, which in this case was certainly not more than forty-eight hours, nor less than forty hours. However, the value attached to this point must be more or less modified by the circumstances surrounding the infection, particularly the exceptional virulence of the culture and the quantity and the purity of the infecting agent—all of which conditions would tend to produce evidences of infection more quickly than had the exposure been an ordinary one.

The Provost of the University of Pennsylvania has announced that the various classes of that institution have united to contribute to a fund to provide a special ward in the University Hospital for the exclusive use of the students of the University, who may require hospital care in time of illness or disability. The ward will be known as the "Student's Infirmary," and will be fitted up as soon as the requisite funds for the purpose have been collected.

By the will of the late Dr. Francis W. Shain, who died in Jersey City in 1896, two scholarships, to be known by the donor's name, are to be established in the Jefferson Medical College. These scholarships are to be awarded by competitive examination in the English branches to graduates of the public schools of this city. The sum of \$3000 is also left to the Jefferson trustees, the interest of which is to constitute three annual prizes to be awarded to the graduates passing the best examinations in practice of medicine, in surgery, and in physiology, respectively.

Dr. William Pepper, who has been spending several weeks in the South, is expected back next week. The indisposition from which he suffered has been wholly removed by his enforced rest, and he will enter upon his professional duties immediately upon his return.

There has been a decided decrease in the number of new cases of enteric fever during the past two weeks, so much so that hopes are now entertained that the present outbreak has about run its course, and that the city will now settle down to its "normal" number of weekly cases—normal for Philadelphia, but abnormal, decidedly so, for other communities. During the week of March 5th 122 new cases of typhoid were reported to the Philadelphia Board of Health, during which period 17 deaths occurred

from this cause. For the week ending February 26th, 141 cases, with 21 deaths were reported. Meanwhile, Councils wrangle over what is popularly known as the "water-snake" bill, or the proposition made by a syndicate to furnish the city at prohibitive terms with a supply of filtered water. The "snake" will probably have been killed by the time these lines are in print, for although it passed with a rush through one branch of Councils, the career of this most extraordinary measure was blocked by some of the more honest members of the other branch. At all events the mayor is pledged to veto the steal should it manage to receive a majority of votes in both branches of Councils. Diphtheria is again on the increase, and measles is everywhere. Of diphtheria, 86 new cases, with 26 deaths were reported this week, as compared with 71 cases and 17 deaths last week. There were 41 new cases of scarlet fever this week, with 2 deaths, against 45 cases, with a single death, last week. And in spite of infection of every sort, in all quarters, Philadelphia may call herself a healthy city, as evidenced by the death-rate reported for last year, recently noted in these columns.

#### OUR BERLIN LETTER.

[From our Special Correspondent.]

THE EMPEROR'S BIRTHDAY—REACTION AGAINST ANIMAL EXPERIMENTATION BY CLINICIANS—DRINKING-WATER AND THE PRESERVATION OF THE TEETH—THE PASSING OF LANDRY'S PARALYSIS.

BERLIN, March 2, 1898.

ON January 27th Berlin celebrated the Kaiser's thirtieth birthday in most loyal fashion. The crowds who gathered near the palace at all times during the day, but especially in the evening, to catch a glimpse of him, were an evident sign of the high esteem in which he is held by most Germans. It has become the fashion for the foreign press generally to belittle him, to point out his overweening vanity, his thorough self-conceit, and his absorption in his own interests and in those of his family. Most of us foreigners who come here have such impressions. Medical men are apt to know something of certain physical defects of the emperor, and to consider them but signs of an organic degeneracy underlying his mental peculiarities. It is quite the fad for the American and English political press to talk in this strain.

I cannot help but think that most of us change our minds when we have learned to appreciate his actions a little better. Instead of absorption in self, one learns to see in him a lively interest in everything that interests the great German nation. He thinks so much of German language, literature, and science, that any personal inconvenience to which he may be put for the encouragement of these seems to count as nothing to him. Medical men who observed his graciousness at the reception to the members of the Leprosy Conference must have been impressed with his lively interest in anything that might protect his people or redound to the glory of German science.

He knew enough of the subject to talk pleasantly, yet interestingly and interestedly, with the representatives of

the various nations. He had the tact to spend a notably longer time with the French representatives than with others. He won everybody by his uncondescending graciousness. There is a personal magnetism about the man which makes those who come in contact with him almost involuntarily do him honor. He went down to Hungary not long ago, where, as a rule, Germans are cordially hated, and completely won the youth of the Hungarian University. The relations between the countries have taken on quite another aspect since. He has not consented to occupy the place of innocuous retirement that somehow it has come to be thought the ruler of a constitutional monarchy should occupy. He has felt the responsibility of the duties devolving upon him, and has endeavored to show his interest in the vital processes going on in his empire. Duty seems ever to have been a precious word to him, as he has been a model husband and father. His duties as head of the state have involved his public assumption of faculties of state that seemed to thrust him too much into the foreground. He is the head, however, of one of the best-governed countries in the world, and his manifold interests are furthering its development in wonderful ways. Millions are spent on the army and navy, but millions too for the University and a new Charité.

Much more might be said, but at least this must be added: a medical man who has studied a little closely the evident purpose of the emperor to be what he is supposed to be—a ruler of his people—cannot but protest against certain utterly false views in regard to him which seem to prevail among foreign medical men. He is a German of the Germans, but, instead of the weak-minded prince with delusions of grandeur that an English press, jealous, perhaps, because their male rulers for a century have been anything but presentable, would picture to us, he is an eminently sane, thoroughly responsible monarch, from whom every, even the slightest, interest of his empire claims attention.

In certain quarters here in Europe a reaction against animal experimentation is evidently setting in. This department of biology has its place, but that place is evidently not the laboratory of the clinical professor of medicine, nor always of surgery, either. In the hands of the physiologist, animal experimentation has led to some of the great discoveries, but only when a thorough knowledge of comparative physiology enabled the experimenter to properly appreciate how much the results of experiments on animals could be applied to human beings, and how much was utterly inapplicable. Even in the hands of professed physiologists it has been the source of a good deal of error, because it was often unwarrantably assumed that observations made on animals would hold good in men.

In the recent rapid progress of medicine the quest for the new has led workers in all departments into the apparently rich field of animal experimentation. Discoveries of drug effects seemed easy, and organic changes of the most varied kinds were artificially produced, and then their mode of origin suggested as the explanation of analogous processes in human beings.

With usually no knowledge of comparative physiology to guide them, and too often the spirit of acquiring cheap notoriety to urge them to publication, it is no wonder that animal experimentation, except under proper safeguards, is coming into disrepute. This state of affairs is unfortunate, because it constitutes the best argument of the antivivisectionists, though the abuses which have crept in can in no way lessen the value of the great discoveries which physiologists have made by the proper use of vivisection.

Professor Von Jaksch, in his latest work on "Intoxications," in Nothnagel's Series, takes care to say that none of his conclusions are founded on observations made on animals, and within this last month or two I have heard at least three university medical professors decry the invasion by animal experimentation of so-called clinical medicine. A prominent journal of "Clinical Medicine" (*sic*) here in Germany, within the last couple of months published an ordinary-sized number of 150 pages, containing three articles with the following titles: "Physical and Chemical Examinations of the Osmotic Pressure of Animal Fluids," "The Law of the Excentric Position of the Long Tracts in the Spinal Cord," and "The Effects of Thyroid Preparations on the Animal Organism." If at some future day such a journal is to be taken as an index of the interests of clinicians in our day, verily, it will be thought that the rich field of clinical, *i. e.*, bed-side observation, had been abandoned for the fantastic theorizing or seductive illusions of animal experimentation.

Dr. Röse of Munich found in examining recruits that the state of preservation of the teeth seemed to depend to a great extent on the salts in solution in the drinking-water of the part of the country from which they came. Most of the recruits who came for examination were from the country districts, so that a good many of the factors that lead to early decay of the teeth in cities—the sudden change from hot to artificially cold foods and drinks, from the very sweet to the very acid, and, in general, the excessive consumption of sweets and acids could be eliminated. He thought that under these circumstances he could set it down as a general law that, the harder the water of a district, *i. e.*, the more calcium and magnesium salts it contains in solution the better the teeth of the inhabitants; while, on the contrary, the softer the water, *i. e.*, the more free from these salts, the worse the teeth. Dr. Röse thought that he could tell from the color of the inhabitants' teeth how much lime there was in the water of the neighborhood they lived in.

This generalization was not readily accepted. It was pointed out that too few observations had been made to admit of any widely applicable conclusion. There comes now from Sweden a rather startling confirmation of it. Swedish dentists, from the statistics of some 2000 patients from all over the country, collected by Förberg, agree that the rule is a true one, and that the preservation of the teeth depends on the lime salts in the drinking-water. If so, it is probable that other bony structures are subject to the same influence, in which case observation may lead to some important influences as to fracture idiosyn-

crasies and certain other conditions of the bony skeleton of which little is known.

Landry's paralysis, acute ascending paralysis as it has also been known, is at present, it would seem, in an eclipse. Whether it will ever emerge from the darkness again remains to be seen. Neurologists and clinicians all speak of it in a very dubious way, and many of them deny its independent existence. The symptom complex under which it masqueraded for a time is now known to belong more properly to a peripheral neuritis, beginning at the ends of the extremities and gradually invading larger and larger nerve trunks. It is said that all the cases of so-called Landry's paralysis may be included under this head, and cases of the disease in which the peripheral nerves were examined always showed neuritic changes. As to the other pathologic alterations found in the nervous system after death from the disease, they are too varied, too little connected with one another, and too often contradictory of one another to furnish a genuine pathologic basis for an independent disease.

#### TRANSACTIONS OF FOREIGN SOCIETIES.

##### Paris.

PREVENTION OF DEATH FROM AIR-EMBOLISM—MARKED LEUCOCYTOSIS IN INFANTILE PERTUSSIS—THE BACILLUS OF RHEUMATISM—RESTITUTION OF THE MUCOUS MEMBRANE OF THE URETER AND BLADDER—ANGINA DUE TO STREPTOCOCCIC INFECTION AND FOLLOWED BY POPLITEAL PHLEBITIS.

At the session of the Biological Society, January 22d, BEGOVIN spoke of the *asphyxia which follows the introduction of air into the jugular vein*, and of the means which may be employed to prevent death under such circumstances. Death is due to the accumulation of air in the right ventricle, and in rabbits and dogs artificially asphyxiated by air blown into their veins, Begouin was successful in saving life by puncturing the right ventricle with a fine, hollow needle, and aspirating the contained air. He believes that the same treatment will be followed by success in operative accidents of this character.

MEUNIER called attention to the very marked degree of leucocytosis which exists in infantile whooping-cough, a degree far in excess of that which accompanies other respiratory troubles. This leucocytosis appears early, before the characteristic spasms of coughing come on. The maximum, according to the blood-count in several cases, averages 30,000 white cells per cubic millimeter. The increase in white globules depends upon the lymphocytes, so that the proportion between them and the polynucleated leucocytes is inverted. Intermediate forms and eosinophiles are only slightly altered in number. This variation in the constitution of the blood is difficult to explain. It may perhaps be due to the extreme congestion of the bronchial and tracheal glands which occurs in whooping-cough.

At the session of January 29th, TRIBOULET showed the heart of a rabbit which died twenty days after inoculation with a culture of *coccobacilli* obtained from the

*blood of a patient suffering from acute articular rheumatism*. This rabbit's heart showed typical lesions of rheumatic endocarditis, and in the veins of the mitral valve were found diplococci. There was, moreover, a thickening of the pericardial and pleural membranes, though the serous membranes of the abdomen and of the joints were absolutely unaffected. Pure cultures of coccobacilli were obtained from the blood and principal organs. Although these organisms have been found in the blood of several rheumatic patients their rôle in this disease is not absolutely determined, and the rabbit in question cannot properly be said to have had rheumatism, inasmuch as the joints were not affected.

APERT placed small quantities of blood from two patients suffering with chorea and endocarditis in tubes of anaerobic milk. One culture remained sterile; in the other, a diplococcus developed similar to that described as occurring in rheumatism.

At the Academy of Medicine, February 1st, CORNIL read a paper upon the *restitution of the mucous membrane of the ureter and bladder* after experimental incisions made in dogs. In the first animals experimented upon a ligature was placed upon the ureter, with a fistula above it, and the bladder was sutured so as to divide it into a right and left portion. The lower portion of the ureter and one-half of the bladder were thus kept free from contact with the urine. Incisions in these portions of the bladder and ureter healed perfectly even though left without suture. In another dog the upper portion of the bladder was removed, and the large omentum stitched to the cut edges so as to complete the walls of the viscus. It united without difficulty besides forming anteriorly very close adhesions to the abdominal wall, thus in a measure restoring the portion of the bladder which had been removed.

At the Medical Society of the Hospitals, January 28th, TROISIER mentioned a case of *angina due to streptococci* in a young man. A week after recovery he was seized with pain in the right leg, and again entered the hospital. He presented the symptoms of *phlebitis in the popliteal region*. This complication disappeared within about two weeks. It was concluded that an infection from the tonsil had entered the blood and set up this phlebitis. A culture made from the blood on the third day after the appearance of phlebitic symptoms remained sterile. This was, however, rather late in the course of the disease to expect to find organisms in the blood, and, moreover, streptococci are demonstrated in the blood with difficulty, even in cases of severe infection.

##### Vienna.

REMOVAL OF SYPHILITIC GUMMA OF THE BRAIN—RUPTURE OF THE BICEPS TENDON—BRONCHITIS WITH CONCRETIONS—USE OF LEAD PLATES TO FACILITATE THE LOCATION OF FOREIGN BODIES IN THE HEAD BY MEANS OF ROENTGEN-RAYS—ATYPICAL FORMS OF ACUTE RHEUMATISM—A CASE OF CHRONIC TETANUS—A DISCUSSION ON CHLOROSIS.

At the session of the Imperial Royal Society of Physicians of January 21st, SCHLESINGER described a case of *gumma of the cortex of the brain which had been*



successfully removed. The patient had been subjected to energetic treatment with mercury and the iodids, but, nevertheless, pain and paralysis increased, and operation was, therefore, determined upon. Before operation there was paresthesia of the right side of the tongue, of the right cheek, and finally of the right upper, and later of the right lower extremity. The tumor was found to be situated partly in the anterior central, and partly in the posterior central convolution, and had a diameter of more than one inch. It was caseous and was removed without much difficulty, leaving a cavity about one-half inch in depth. The paralysis rapidly disappeared and the ability to speak was almost wholly regained within ten weeks. Schlesinger thinks that an operation of this character is indicated in those patients in whom the lesion is cortical and circumscribed, and whose symptoms are increasing in spite of antisyphilitic treatment.

At the session of January 28th, VON HOFMANN presented a male patient aged twenty-eight years who ruptured the long biceps tendon a year and a half previously without any serious loss of function. The typical symptoms of rupture were present, *viz.*, a depression above the belly of the biceps, an unusually marked swelling of the latter, which was also abnormally near the ulna.

MAGER exhibited a woman who, after recovery from a severe attack of pneumonia, suffered from violent attacks of coughing, lasting for hours, and associated with expectoration of small concretions covered with mucus and occasional specks of blood. Altogether about thirty such concretions had been coughed up. They consisted of calcium phosphate and calcium and magnesium carbonate. Tubercle bacilli had never been found in the sputum and the physical examination of the lungs was negative.

STOCKL described two cases in which foreign bodies in the head were located with exactness by the use of the Röntgen-rays facilitated by covering portions of the head with lead plates in order to bring out more sharply the density of the different shadows.

SINGER spoke at the session of the Medical Club of January 19th, upon atypical forms of acute rheumatic arthritis. Typical rheumatism is characterized by swelling of the joints and disorders of the skin, heart, and of the serous membranes, which are favorably influenced by salicylates. In 1885, Immermann called attention to certain cases of neuralgia of the trigeminus beginning with fever and accompanied with swelling of the joints and heart symptoms and which were favorably influenced by salicylates. Edlefsen called this an embryonic form of polyarthritis, and to-day we include in it certain cases of sciatica. That chorea is to be classed among the atypical forms of rheumatism is shown by the symptoms in the joints and endocardium as well as by certain bacteriologic discoveries. Moreover, polyneuritis has much in common with polyarthritis, which it often follows. The post-rheumatic muscular atrophies which owe their existence to polyneuritis must also be included in this classification. Herpes labialis and herpes zoster may also be considered, as atypical manifestations of rheumatism. Therefore

the joint symptoms should be regarded as the most striking rather than the most universal manifestations of rheumatism. The most reliable symptom is fever, which is common to all forms and often extends beyond the period in which there are symptoms in the joints. The etiology of the disease lies in an infection of the blood.

PINS thought Singer went too far in describing rheumatism as an infection of the blood. The fever could be explained by an inflammation of the vessels of some particular organ.

At the session of January 26th, PINELES described a case of chronic tetanus. Twenty years ago the patient, at that time a girl of seventeen years, passed through a severe attack of typhoid fever which terminated in painful contractions, taking the form of tetanus. Every year since that time the tetanus recurred during the months of January, February, or March. During the last fourteen years there had been a disturbance of the stomach and intestines, manifesting itself at different periods of the year, often in the form of a persistent diarrhea. The tetanic symptoms, however, occurred during the months mentioned.

At the session of the College of Doctors of Medicine, January 24th, KAHANE read a paper upon chlorosis. He denied that there is any real specific for this disease, and asserted that iron is contraindicated in many cases. Iron, according to this author, acts not by supplying the deficiency of this metal in the blood, but by circulating in the blood in minute particles and irritating those organs which make blood. Recently it has been claimed that arsenic, corrosive sublimate, and phosphorus act in a similar manner. In the treatment of chlorosis stress is chiefly to be laid upon diet and hygiene. Beefsteak and red wine by no means fulfil all the indications for treatment. Rest in bed is very important. The physician should not compel the patient to eat much meat if this food is distasteful. Bavarian beer is extremely beneficial in chlorosis and is usually eagerly taken.

## SOCIETY PROCEEDINGS.

### NEW YORK ACADEMY OF MEDICINE.—SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting, Held before the Academy, Thursday, February 18, 1898.

THE President, E. G. JANEWAY, M.D., in the Chair.

DR. T. HALSTED MYERS read the paper of the evening, entitled

NON-TUBERCULAR INFLAMMATIONS OF THE SPINE; SYPHILITIC, RHEUMATIC, MALIGNANT, GONORRHEAL, TYPHOID, INFECTIOUS, TRAUMATIC.

The author said that since the discovery of the bacillus of tuberculosis the tendency has been to ascribe to this disease the ever-increasing number of inflammatory lesions of the spine, and to consider tuberculous quite a number of kyphoses which are the result of syphilis, malignant, or infectious disease, or traumatism.

Syphilitic lesions of the vertebræ are comparatively

rare, although quite a number of cases have been reported by such authorities as Fournier, Virchow, Michel, Gross, Astley Cooper, and others, in which syphilitic lesions were found in every part of the spinal column. The cervical region is apparently the part most frequently attacked. The diagnosis presents many difficulties.

Of the rheumatic inflammations of the spine, rheumatoid arthritis is the most common. This affects the bones as well as the joint structures. It is a chronic progressive disease, and is never accompanied by suppuration. Massage, suspension, and bracing are indicated, in addition to antirheumatic constitutional treatment.

Malignant disease of the vertebræ is rare, and often the diagnosis is not made until after death. Sarcoma and carcinoma appear in about equal frequency, and are generally metastatic, although both may be primary. In the latter the diagnosis is especially difficult. Pain is a prominent symptom. Motor paralysis is not always present. Affections of the spine due to gonorrhea are extremely rare. In a series of 119 cases of gonorrheal rheumatism there was no involvement of the spine in any. In 116 cases reported by Nolan, two were found in which there was arthritis of the vertebræ; in these there was also involvement of other joints.

Typhoid spine is supposed to be an inflammation of the periosteum or fibrous structures of the spine, which begins soon after the fever has subsided. The condition is not at all uncommon. The typhoid bacillus has been found in the inflammatory foci as long as seven years after the beginning of the disease.

Infectious inflammation not infrequently attacks the spine after scarlet fever, measles, tonsillitis, etc., probably by direct transmission from the throat lesions. The lesion consists of a periosteitis or an arthritis of the vertebral articulations.

Traumatic inflammation of the spinal column often stimulates Pott's disease. Fractures of the vertebræ should be carefully protected for a long period in order to prevent deformity and paralysis, and to relieve pain and disability.

#### DISCUSSION.

DR. C. C. RANSOM: Although it is customary in speaking of rheumatic and gouty diseases of the spine to include rheumatoid arthritis in the same category, this affection is so different in its morbid anatomy, prognosis, and treatment that it seems to me best to describe it separately.

Affections of the spine due to rheumatism and gout are of comparatively rare occurrence, and are seldom seen unassociated with involvement of some of the other joints. In nearly 1000 cases of rheumatism and gout treated at Richfield Springs, I have notes of only three or four in which the intervertebral joints alone were involved. The lower dorsal and upper cervical regions are the seat of the disease, which is usually of the subacute or chronic type, and differs in no respect from that which affects other joints. We frequently see individuals predisposed to rheumatism or gout who more or less suddenly develop pain and tenderness in these regions with a varying degree of stiffness and rigidity. A careful examination,

however, discloses the fact that the affection is muscular and not arthritic, and the process is, as a rule, of much shorter duration. The tenderness in the true arthritic cases is elicited only on deep pressure, and the pain on movement, while usually quite severe at first in both affections, will disappear more rapidly on continued movement in the muscular type of the disease. In protracted cases of the joint affection a considerable deformity will sometimes occur, with complete immobility due to contracture. This can be almost entirely overcome, especially in young subjects, by judicious exercise and proper treatment. Changes in the cartilaginous or osseous structures of the joints are exceedingly rare, and it is only in very exceptional cases, and in patients of advanced years, that permanent changes in the ligaments—the so-called "fibrous ankylosis"—occurs.

Not much difficulty should be experienced in making the diagnosis of rheumatism or gout of the spine. From muscular rheumatism, the chronicity of the trouble, and usually the involvement of other joints, together with the deep-seated tenderness, will suffice for purposes of differentiation. From rheumatoid arthritis, the absence of deposit above the articulations, together with the characteristic deformities of the other affected joints in this disease, and the accompanying atrophy, will aid in making the diagnosis. The absence of tenderness on vertical pressure, as the jarring in walking, etc., is sufficient to distinguish it from spinal caries.

In the treatment of these cases the general methods usually employed in rheumatism and gout will be found to give good results. Specific remedies, such as the salicylates, iodid of potassium, and colchicum, may be used in the more active stage of the disease for the relief of pain and some of the more distressing symptoms, but to cure the affection dependence must be placed upon general tonic and hygienic treatment, which latter will include hydrotherapy, properly conducted exercise, and massage. Of the tonics, iron, arsenic, and the hypophosphites are of the greatest value, and in my experience it is only in very exceptional cases that these remedies do not do good. Of hydrotherapeutic measures, general baths of natural mineral waters, followed or combined with the local douche over the spine, or alternating hot and cold water with varying pressure, will be found of great service. In all cases properly conducted massage is of benefit. This should begin with light movements over the painful area, working outward from the spinous processes, and followed by vibratory movements and passive motion. As soon as the pain on motion has sufficiently subsided to permit active movements, these should be instituted, and a proper form of active exercise prescribed and regularly carried out. In matters of diet the same rules should be followed as in all cases of gout and rheumatism, bearing in mind the fact that in matters dietetic every individual is a law unto himself.

Rheumatoid arthritis affecting the spine is of much more frequent occurrence than the foregoing, and more serious as to its depressing influences and unresponsiveness to treatment. In elderly men, especially, it is not uncommon to find this disease affecting the intervertebral

joints alone, and most cases of senile kyphosis are probably due to this affection. In younger individuals the involvement of the spine is almost always an accompaniment of the disease in other joints, and, indeed, this articular tendency is one of the characteristic and distinctive features of the disease. It may begin with more or less pain in the joints following exposure to cold or wet, and in these cases it very much resembles an attack of subacute rheumatism, but, as a rule, the onset is very gradual. The upper cervical and lumbar intervertebral joints are the ones usually affected, although the disease may appear in any region and involve the entire spinal column.

In rheumatoid arthritis structural changes takes place in the affected joints from the very onset of the disease. As a result of the bone changes and curvatures the entire column becomes shortened and the surrounding muscles atrophy. Except in the early stages of the disease, the diagnosis presents no difficulties. In the beginning it may be confounded with chronic rheumatism, but the involvement of other joints, and the beginning deformity and muscular atrophy, are sufficiently distinctive. The disease rarely tends to shorten life, except in severe cases in which great deformity may give rise to pressure upon the cord. There is very little to offer in the way of treatment. The progress of the disease must be checked if possible. The classic remedies used in rheumatism and gout have little if any effect, and with the exception of iodid of potassium, they are, in my opinion, more apt to do harm than good. Above all other drugs, the tonics, such as iron, arsenic, phosphorus, and the hypophosphites, will be found of value. The diet should be simple, but very nourishing. Hydrotherapy is of value for its general effect. Massage is also beneficial in restoring healthy activity of the tissues, but it should be used with great care and only upon the muscular tissues, the joints being left alone.

DR. V. P. GIBNEY: Malignant disease of the vertebrae is a condition very interesting to both the specialist and general practitioner because of the peculiarity of the symptoms presented and the difficulty in making the diagnosis. Dr. Myers has said that the latter is usually made by autopsy. I think this is going too far, for in many cases the diagnosis may be made before death. The severity of the symptoms is so great and the pain in some regions so acute and persistent that their significance is often recognized. Malignant disease should be suspected if a cicatrix is found in the mammary region, giving evidence of a previous amputation of the breast—a fact which is often concealed by the patient. Carcinomatous disease of the vertebrae presents much the same features as sarcoma. The deformity is very slight. The severe pain in these cases may be referred to the terminal branches of the nerves. Treatment nearly always fails to give relief.

There is one other condition of the spine which the author has not mentioned, and that is spinal irritation. This is a common disorder, and there is often present an irregularity of the spine which is apt to lead one to believe that the condition is one of caries. Tenderness

over the spinous processes will be present, however, and this is rare in Pott's disease, especially in children.

We are not apt to look for tuberculous disease of the spine in adults, although it may occur. I have sometimes thought that the diagnosis might be determined by the employment of tuberculin, though few investigations have been made in this direction.

DR. W. R. TOWNSEND: I wish to call attention to the fact that these non-tuberculous affections of the spine are rare as compared with those of tuberculous origin. It has been said that but three examples of infected spine have been found in a series of one thousand cases. My experience bears out this statement. Syphilitic disease of the spine is rare. When it does exist, the disease is generally inherited. In rheumatic diseases of the spine the character of the kyphosis will usually determine the diagnosis, for there is not apt to be a distinct projection or much destruction of bone.

DR. SAMUEL LLOYD: In regard to traumatic conditions of the spine there are two which may readily be mistaken for tuberculous disease. The first is that in which injury has resulted in tearing of the spinal muscles, hemorrhage, and possibly infection at a later date. Some years ago I saw a child in which this condition existed. There was a history of injury followed by comparatively rapid interference with the motions of the spine, paralysis below the point of injury, anesthesia, and rectal and bladder symptoms. The trouble was supposed to be due to compression, but in a short time inflammatory symptoms developed, the rigidity extended up the spinal column, and the case presented the picture of tuberculous spine. Operation was performed, and an ordinary abscess was found in which there was a blood-clot that had caused pressure on the spinal cord. The child recovered.

The other condition which simulates tuberculous disease of the spine is partial dislocation or fracture of the vertebrae caused by a heavy body falling upon the spine. I saw such a case in which this condition was mistaken for tuberculous disease and treated as such. An injury had been received, but it was thought to be a sprain which resulted in a tuberculous process. The patient improved somewhat under treatment, but later received another injury of the spine and became paralyzed. I was able to make out a partial dislocation of the eleventh dorsal vertebra which formed the apex of a kyphosis. I advised against operation and the man died with the usual symptoms of exhaustion following destruction of the spinal cord. Autopsy showed that there was an old unrecognized dislocation and that the inflammatory material thrown out at the time of the first injury had been torn apart by the second, thus allowing still greater dislocation of the bone. In such cases the diagnosis depends upon whether or not crepitus can be obtained. It is difficult to determine whether there is only rupture of the ligaments or whether partial dislocation or fracture has occurred, especially when symptoms of compression do not at once follow the injury. I remember seeing such a case at Randall's Island Hospital. The patient left the hospital at the end of ten days, wearing a support, be-



cause it was thought that he had sustained nothing more than a sprain. Within a month he became entirely paralyzed and a distinct callus had formed at the site of the injury.

DR. R. H. SAYRE: The non-tuberculous inflammations of the spine with an anteroposterior curvature, which, associated with rickets, occur in small children, should not be overlooked. These inflammations of the joints which complicate rickets are too often attributed to tuberculosis. I have seen a number of such cases in which there was marked anteroposterior curvature of the spine and in which the symptoms presented were those of Pott's disease.

I do not think Dr. Myers mentioned the possibility of confounding erosion from aneurism with Pott's disease. I have seen two or three cases in which this occurred. There are several cases on record in which too violent suspension, the kyphosis being unsupported, was followed by death from rupture of an aneurism.

In making the differential diagnosis of syphilis of the spine the presence of multiple neuritis would be in favor of syphilis. I have seen only one such case, though in it there was a distinct syphilitic history as well as other characteristic symptoms of specific disease.

I have seen one or two cases of obscure disease of the spine in which various diagnosis were made. In one there was marked limitation of motion and decided pain. Later the inflammation involved the entire spinal column, which finally became absolutely rigid. The stiffness also involved the ribs at their articulations with the spine to such an extent that respiration was seriously interfered with. The patient somewhat improved under gentle massage.

DR. B. F. CURTIS: The author has referred to malignant disease of the spine occurring secondarily to cancerous disease of the breast. I recall a case in which the right breast had been amputated a year previously for a growth the exact character of which was uncertain. Five months before the patient was admitted to the hospital she began to have pain in the back and in the right side of the chest. Examination showed practically nothing; all the organs seemed normal; there was no recurrence in the breast, and the pain was supposed to be due to neuralgia or rheumatism. Later the reflexes disappeared; the prick of a pin could not be felt below the umbilicus; there was retention of urine and involuntary discharge of feces, and, finally, complete paralysis. The pain in the back still continued, and a kyphosis developed in the mid-dorsal region. The patient was examined by a number of medical men whose diagnoses varied from secondary deposit to Pott's disease. Operation was urged, and rather against my own judgment I was induced to do a laminectomy. I found the cord slightly compressed and congested at the point of kyphosis. The sixth dorsal vertebra was softened and pressed somewhat on the anterior surface of the spinal cord. There was, however, no marked thinning of the cord at this point, and nothing to account for the severity of the symptoms. The wound healed by primary union, but the operation did not relieve the symptoms. Early in the treatment a large bed-sore

developed on the sacrum, which finally became necrotic, and the patient died of sepsis on the sixteenth day after the operation.

DR. GEORGE R. ELLIOTT: While it is evident that the author of the paper wishes to avoid the strictly neurologic element in traumatic spine, I do not think it has been made sufficiently clear just what he means by the latter. I infer from his carefully prepared cases that he means spinal injuries which produce true organic lesions, and the discussion seems to bear this out. The lesson we are taught as a result of autopsies is that true organic lesions of the spinal column and cord following traumatism are not common. Lesions are diagnosed and nothing found. The point I especially wish to make is the value of being able to differentiate the traumatic spine with a lesion from the so-called railway spine or spinal neurosis which it is not the province of this Section to discuss. When there is a distinct lesion, such as fracture of the vertebrae, laceration of ligamentous structures, extradural hemorrhage, etc. (the cord itself almost invariably escaping), there is presented a clean-cut symptom complex in the form of possible bony change, true atrophy of muscle (usually localized), true motor paralysis, distinct electric degenerative reaction, and clearly demonstrable objective symptoms which are especially valuable from a medico-legal standpoint. Recently, a patient of mine recovered damages for a spinal injury. There was atrophy of the leg to the extent of one inch, degenerative electric reaction, partial true motor paralysis of the legs, disturbances of the bladder, some external evidence of bone injury, pointing clearly to actual organic lesion of the ligamentous structures and bone, with the secondary inflammation extending to the cord. In addition to the organic changes the patient had the neurotic picture—the neurosis engrafted upon it—which alone, as we know, admits of endless neurologic speculation. Hence, I wish to repeat that the importance of searching for evidence of actual destruction due to traumatism, and the ability to demonstrate it cannot be overestimated.

DR. C. N. DOWD: Malignant disease of the breast is often followed by a recurrence in the spine. Some years ago I reported twenty-nine cases of amputation of the breast for malignant disease, and in five of these there followed distinct symptoms of carcinomatous disease of the spine. The diagnosis was not proved by autopsy, but the clinical symptoms left little doubt as to the nature of the trouble.

DR. A. B. JUDSON: In non-tuberculous disease of the spine the diagnosis is of the greatest importance. A review of the symptoms reveals many which are absent in Pott's disease, and we are thus enabled to exclude it. A diagnostic point is to be found in the fact that in non-tuberculous inflammations the symptoms are prompt in onset instead of being insidious.

DR. E. G. JANEWAY: I have seen a number of cases of carcinomatous disease of the spine. Primary malignant disease of the spinal column is rare, but its appearance secondary to the existence of the disease in the breast or elsewhere is quite common. Severe pain in the back in a patient who has had cancer can generally

be attributed to malignant deposit in the spine. The diagnosis of primary new growth is more difficult, but it can usually be made by careful observation of the case. Protracted pain in the spinal column is either due to new growth, inflammatory disease, or to aneurism. One case which I recall was that of a woman who had been shot in the mouth with a blank cartridge. Stiffness of the neck and spinal paralysis developed, and the autopsy showed inflammation running down the vertebral notches, with secondary inflammation of the cord. I once saw a boy who had been kicked and who was suffering from what was supposed to be spinal meningitis. Autopsy showed necrosis of the sacrum, with the exudate outside of the dura mater but extending along the roots of the nerves.

The point brought out by Dr. Sayre in regard to aneurism is a good one. I have seen several such cases which were supposed to be tuberculous.

If is often difficult to make a correct diagnosis in the cases of spinal inflammation: for instance, in those instances in which the patient is tuberculous and presents a history of syphilis. The only way to make the differential diagnosis is to go over all the points of each disease and exclude as many as possible, not forgetting the possibility of two diseases being present in the same individual.

DR. MYERS, in closing: The differential diagnosis between syphilitic and tuberculous disease of the spine is very difficult. In the case I referred to in the paper, there was a family history which indicated syphilis, and the strong, healthy appearance of the child made me exclude tuberculosis. The patient improved under the administration of iodids and mercury.

In the cases of malignant disease which I have seen, pain has been very severe up to the time when the paraplegia became complete. Dr. Shaffer has said that he looks upon severe pain before the appearance of motor symptoms as rather diagnostic of malignant disease.

## REVIEWS.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., LL.D., Professor of the Practice of Medicine in the Medico-Chirurgical College, Philadelphia; Attending Physician to the Medico-Chirurgical and Samaritan Hospitals. Illustrated. Philadelphia: W. B. Saunders, 1898.

It would seem that there had been a surfeit of text-books on the practice of medicine of late. Almost every teacher has within the past two years made public his methods and beliefs in the shape of a book. If all were as thorough and as complete, however, as the one under consideration, there would not, and could not be, too many. It is a work thoroughly scientific, modern in every sense, embodying and expressing Professor Anders' views, which are those of the best men in the profession.

There are some peculiar points of classification to which attention should be directed. Acute and subacute articular rheumatism are placed under the infectious diseases, and tuberculosis as well. Dr. Anders follows recent

German thought, however, in considering chronic articular rheumatism different in its etiologic nature from the acute variety, and hence includes it under the group of infectious diseases of unknown etiology. The other diseases embraced in this group are muscular rheumatism, Weil's disease, Schlammbieber, and Malta fever. Mainly nervous diseases, the choreas, migraine, epilepsy, tetany, hysteria, etc., are included under Anders' classification of diseases of unknown pathology, while under the diseases of the muscles he describes the various atrophies and dystrophies. These peculiarities of classification do not mar the work in any way, expressing, as they do, the author's own views.

A very valuable feature of the work is the care taken in making the diagnosis of disease clear. Throughout the book are placed fifty-six tables of differential diagnosis, which are made with great care, and which cannot fail to be helpful to the student and practitioner. It is very evident that the hardest kind of work and the utmost watchfulness are responsible for the general excellent tone of the book. The latest bacteriologic facts and clinical investigations are to be found in its pages. Omissions are exceedingly rare. Of important ones, we have noted only that under the treatment of hemophilia the application of normal human blood to the bleeding surface is not mentioned. This is but trifling, it is true, yet it shows how quite perfect the book must be in every other respect. The spelling and terminology are those of modern lexicographers.

The book is handsomely printed on heavy paper, and the illustrations are numerous, beautiful, and instructive. They include Röntgen-ray photographs, some admirable charts of the anatomy of the nervous system, and Thayer and Hewetson's plates of the malarial parasites. The book can be unreservedly commended to student and practitioner as a safe, full compendium of the knowledge of internal medicine of the present day.

LECTURES ON APHASIA. By DR. BYROM BRAMWELL. Reprinted from the *Edinburgh Medical Journal*, July to December, 1897.

THIS brochure consists of a series of lectures which originally appeared in the *Edinburgh Medical Journal*, and which embody a number of interesting cases of aphasia that appeared in the *Lancet* during 1897. The author has put the profession under obligations by gathering between two covers his important contribution to a difficult and fascinating subject, and thus adding to its accessibility. The author is well known to his medical brethren on this side of the water, not alone because of his monumental "Atlas of Medicine" and "Diseases of the Spinal Cord," but by his contributions to many other subjects in pathology and internal medicine which his writings have illuminated. His reputation as a close observer and profound thinker will be enhanced by these lectures, which, in the opinion of the reviewer, are among the most important contributions to the subject of aphasia in the English language since the appearance of the Ross lectures, which were published in the *Manchester Chronicle* about ten years ago. Bramwell follows the

teachings of Dejernie in his description of the zone of language, inasmuch as he does not regard a graphic motor center as a component of the speech area, but as a subdivision of the Rolandic cortical area to which is allocated the central representation of complex coordinated movements which are subservient to and executive of impulses starting from the speech area. Moreover, he is not a believer in the autonomous activity of the individual speech centers, the auditory, the visual, and the articulatory, but contends that finished speech is the result of the harmonious activity of these three centers, while admitting naturally that the primary revival of the word, and, indeed, the monitorship, may be assumed in different individuals by one of these centers.

This is an important advance in the conception of aphasia, and a more general recognition of it will, we believe, do much to make an understanding of the complexities of the symptom more ready.

Another very important stand taken by the author in these lectures is in reference to the unconscious education which the hemisphere opposite to that which contains the "executive" zone of language receives, and which unconscious education may prepare it for the assumption of executive function when the area intended autogenetically and phylogenetically for the speech area is destroyed as the seat of a lesion. This subject is of great importance when one is confronted with the problem of re-educating the aphasic patient.

The different varieties of aphasia are discussed in an exhaustive and lucid manner in the first few lectures, while the last lecture is devoted to an attempt at explanation of the process of education of the different speech centers, with a discussion of the mental idea of movement or action and a consideration of internal speech and thought. To him who has not thoroughly familiarized himself with the hall-marks of this most important symptom, the first lectures will most appeal, for it will be apparent to the casual and to the close reader that he must needs look far to find a more straightforward, yet withal comprehensive, presentation of the subject than in these pages.

Those who have labored with the subject of aphasia to begin to comprehend its intricacies will find in the closing chapter much that is worthy of their careful consideration. The point of view is particularly a personal one, and every student of language will look forward with pleasurable anticipation to its further elaboration in the future by the author.

**CUTANEOUS MEDICINE: A SYSTEMATIC TREATISE ON THE DISEASES OF THE SKIN.** By LOUIS A. DUHRING, M.D., Professor of Diseases of the Skin in the University of Pennsylvania. Author of "A Practical Treatise on Diseases of the Skin," and "Atlas of Skin Diseases." Part II.: Classification—Anemias, Hyperemias, Inflammations. Illustrated. Philadelphia: J. B. Lippincott Company, 1898.

THE high standard of this exhaustive work on diseases of the skin is maintained in the present volume, which will be received with the utmost satisfaction by the med-

ical profession. The author has modified his earlier classification of skin diseases, chiefly in the omission of an etiologic class. The present plan consists of anemias, hyperemias, inflammations, hemorrhages, hypertrophies, atrophies, new formations, anomalies of secretion of the glands, and neuroses. Strange to say, the diseases due to parasites are included under inflammations. The anemias are disposed of in three and the hyperemias in twelve pages, the balance of the book being devoted to inflammations, eczema being the chief disease described, and occupying over one hundred pages. As regards the mycotic nature of eczema, Duhring considers it more than likely that the bacteria present are adventitious and secondary, and he is of the opinion that the views of Unna and others on the subject have not been sufficiently substantiated to warrant the microbic origin of this disease as positive. There still seems to be much difficulty in defining eczema seborrhoicum as described by Unna, and the author claims that in typical cases this disease "may be looked upon either as a form of eczema complicated with seborrhea or as a seborrhea upon which eczema has supervened." The pathology of eczema receives adequate attention, and the section devoted to its treatment is handled in a most comprehensive and exhaustive manner, all the more recent observations and practical discoveries being touched upon.

A lengthy and elaborate chapter is devoted to dermatitis herpetiformis, and the characteristic features of this disease are discussed in a satisfactory manner. From beginning to end the book is written in the usual pleasant style of the author, and throughout it abounds in those original observations which show conclusively the result of vast experience.

The work contains many full-page illustrations, made mostly from photographs. Only the highest praise can be bestowed upon this feature of the book, and we much prefer these illustrations to many of the colored lithographs recently noted in works on the skin, though in some instances the value of chromolithographs should not be underestimated. Many of the fine histologic drawings made by Gilchrist have been introduced, and serve to illustrate the text in an admirable manner.

As a whole, the book is eminently satisfactory and thoroughly in accord with recent teachings on diseases of the skin, and we take great pleasure in commending it to all interested in the subject.

**A MANUAL OF OBSTETRICS.** By A. F. A. KING, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University and in the University of Vermont. Seventh edition. Philadelphia and New York: Lea Brothers & Co., 1898.

IT must indeed be gratifying to the author of this manual of obstetrics to find edition after edition of his popular work called for; and this, too, despite the fact that within recent years several new manuals upon this subject have made their appearance. The present edition is even better than its predecessors. Throughout the work the life-saving value of aseptic midwifery is



insisted upon, and in his concluding remarks on puerperal septicemia the author lays particular stress upon prophylaxis as superior to anything that may be done once sepsis has supervened. This chapter has been entirely rewritten and is absolutely modern, including an excellent discussion of the serum-therapeutics of puerperal sepsis. The chapter on extra-uterine pregnancy is particularly good, and surgical treatment of the affection is correctly insisted upon as the best. The whole work bears evidence of careful revision and is thoroughly up to date. As it always has been, so it is now, one of the safest primers of obstetrics which can be placed in the student's hands. It is thoroughly practical, concise, and modern. The publisher's work is above criticism.

MEDICAL REPORT OF THE SOCIETY OF THE LYING-IN HOSPITAL OF THE CITY OF NEW YORK. New York: D. Appleton & Co., 1897.

THIS report corresponds to our notion of what a hospital report should be. From cover to cover it is full of good things and shows unmistakably what the Lying-in Hospital is doing. That its work is scientific and, at the same time, beneficent, the perusal of this report conclusively shows. Since its foundation in 1890, 10,233 patients have been delivered by the students and instructors, with a total of 43 deaths, a record of which any institution might be proud, and when it is recalled that the vast majority of the cases treated by the hospital occur in tenement-houses, the death-rate is remarkably low.

The report contains several interesting monographs, the work being based on the service of the Hospital. Some of them are "The Premature Interruption of Pregnancy," by Clifton Edgar; "Asepsis, Morbidity, and Mortality," by Samuel W. Lambert; "Deformed Pelves," by Austin Flint, Jr.; "Placenta Previa," by George R. White; "Fractures in the New-born," by Churchill Carmalt, and the reports of the curator, orthopedic surgeon, embryologist, pathologist, and bacteriologist. The report of the embryologist, Professor George T. Huntington, consists of a "Contribution to the Topographical Anatomy of the Thorax in the Fetus at Term and in the New-born Child," and is an especially thorough and valuable scientific article. Lack of space forbids our entering into further detail concerning many vexed and interesting obstetric questions which are here discussed. The report is unique among hospital records, and should be carefully studied by every thoughtful student of obstetrics.

CENTRALBLATT FÜR DIE GRENZGEBIETE DER MEDIZIN UND CHIRURGIE. Herausgegeben von DR. HERMANN SCHLESINGER, Privat-docent an der Universität in Wien. Vol. I., No. 1. Jena: Gustav Fischer.

THIS new *Centralblatt*, under the editorship of Dr. Hermann Schlesinger, aims to supplement the journal published by the same house dealing with topics that lie in the borderland of medicine and surgery. The object of this monthly will be to sift the literature on topics coming within its range and to present it in the form of abstracts. As the editors point out, the literature of medicine has grown so enormously in recent years, that no

one man can keep fully abreast of it. He hopes that this journal may aid the general practitioner, the medical consultant, and the surgeon in their reading.

The first number contains two monographs, one on the recent advances made in the study of brain abscesses of otitic origin, the other on the pathology and treatment of floating kidney. Both have appended voluminous bibliographies. The remainder of the volume is taken up by abstracts, the general nature of which will be indicated by the mention of a few of the titles: "A case of meningitis and epidural abscess with the presence of the influenza bacillus"; "Formation of renal calculi following a fall on the back"; "On tuberculosis of the kidneys"; "The limits of nephrectomy"; "The diagnostic value of catheterization of the ureters as it influences renal surgery." The new *Centralblatt* will, we hope, meet the same favor as its predecessors.

## THERAPEUTIC HINTS.

### For Chlorosis.—

℞ Ferri et potassii tartrat. . . . .	3 ii
Liq. potass. arsenitis . . . . .	3 i
Aq. dest. . . . .	3 iii.

M. Sig. Five to ten drops in a little wine three times daily before meals.—*Casate*.

**Metallic Iodin in Syphilis.**—BONVEYRON states that he has succeeded by the administration of large doses of metallic iodine in effecting rapid cures in very severe cases when other modes of treatment had failed. These cases presented pulmonary, cerebral, and bone lesions. He prescribed as follows:

℞ Iodi pur. . . . .	gr. xv
Potass. iodidi q. s. ad. solut. . . . .	
Glycerini . . . . .	3 iiss
Ac. citrici . . . . .	3 iiiss
Syr. simpl. . . . .	q. s. ad. Oii.

M. Sig. Two tablespoonfuls daily, increasing by one tablespoonful daily until nine are taken each day.

**For the Application of Collodion and Salves in Ophthalmology** the use of a glass stirrer, with smoothly rounded tip, is suggested. This is easily cleaned and sterilized, and with it there is no danger of accidental injury to the eye.

**For Acute Colic**, the result of indiscretion in diet, the following is recommended:

℞ Chloroformi . . . . .	3 iss
Tinct. opii deodorat. . . . .	3 i
Camphoræ . . . . .	gr. xv
Ol. cajaputi . . . . .	3 i
Aquæ . . . . .	3 ii.

M. Sig. One teaspoonful every hour or two.

### For Chronic Diarrhea.—

℞ Cupri sulphat. . . . .	gr. i
Morphinæ sulphat. . . . .	gr. xxiv.
Quininæ sulphat. . . . .	

M. Ft. pil. No. XII. Sig. One pill three times daily.